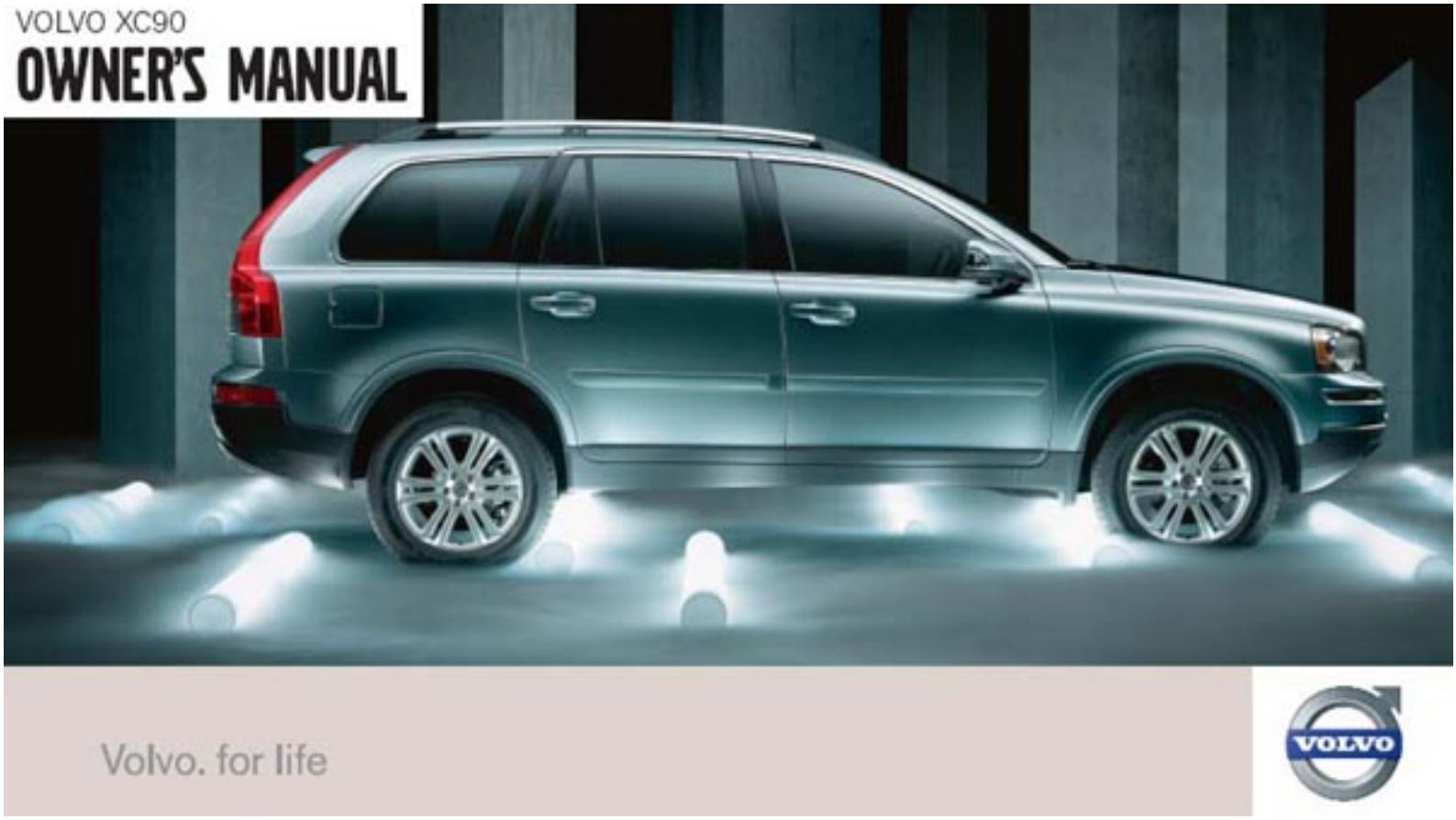
# 2 0 0 7
# VOLVO
# XC90




## VOLVO OWNER'S MANUAL XC90

pg. 1 Introduction

Welcome to the world-wide family of Volvo owners. We trust that you will enjoy many years of safe driving in your Volvo, an automobile designed with your safety and comfort in mind. To help ensure your satisfaction with this vehicle, we encourage you to familiarize yourself with the equipment descriptions, operating instructions and maintenance requirements/recommendations in this manual. We also urge you and your passengers to wear seat belts at all times in this (or any other) automobile. And, of course, please do not operate a vehicle if you may be affected by alcohol, medication or any impairment that could hinder your ability to drive.

Your Volvo is designed to meet all applicable safety and emission standards, as evidenced by the certification labels attached to the driver's door opening and on the left wheel housing in the engine compartment.

For further information please contact your retailer, or:

**In the USA**:
Volvo Cars of North America, LLC
Customer Care Center
P.O. Box 914
Rockleigh, New Jersey 07647-0914
1-800-458-1552
www.volvocars.us

**In Canada**:
Volvo Cars of Canada Corp.
National Customer Service
175 Gordon Baker Road
North York, Ontario M2H 2N7
1-800-663-8255
www.volvocanada.com

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pg. 2 Introduction

## General Information

**Shiftlock**
When your vehicle is parked, the gear selector is locked in the (**P**)ark position. To release the selector from this position, turn the ignition key to position II (or start the engine), depress the brake pedal, press the button on the front side of the gear selector and move the selector from (**P**)ark.

**Keylock**
When you switch off the ignition, the gear selector must be in the (**P**)ark position before the key can be removed from the ignition switch.

**Anti-lock Brake System (ABS)**
The ABS system in your vehicle performs a self-diagnostic test when the vehicle first reaches the speed of approximately 12 mph (20 km/h). The brake pedal will pulsate several times and a sound may be audible from the ABS control module. This is normal.

**Fuel filler door**
The fuel filler door, located on the right rear fender, is connected to your vehicles central locking system.

Press the button on the light switch panel (see illustration on page 55) when the vehicle is at a standstill to unlock the fuel filler door. Please note that the fuel filler door will remain unlocked until the vehicle begins to move forward. An audible click will be heard when the fuel filler door relocks.

**Fuel filler cap**
After refueling, close the fuel filler cap by turning it clockwise until it clicks into place. If this cap is not closed tightly or if the engine is running when the vehicle is refueled, the Malfunction Indicator Lamp ("Check Engine" light) will illuminate.

**Important information**
Before you operate your vehicle for the first time, please familiarize yourself with the new engine oil consumption information on page 114. You should also be familiar with the information in chapters one, two and eight of this manual.
Information contained in the balance of the manual is extremely useful and should be read after operating the vehicle for the first time.
The manual is structured so that it can be used for reference. For this reason, it should be kept in the vehicle for ready access.
Do not export your Volvo to another country before investigating that country's applicable safety and exhaust emission requirements. In some cases it may be difficult or impossible to comply with these requirements. Modifications to the emission control system(s) may render your Volvo not certifiable for legal operation in the U.S., Canada and other countries.
All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication. Please note that some vehicles may be equipped differently, depending on special legal requirements. Optional equipment described in this manual may not be available in all markets.
Volvo reserves the right to make model changes at any time, or to change specifications or design without notice and without incurring obligation.

pg. 3 Introduction

## General Information

**WARNING!**

**CALIFORNIA Proposition 65 Warning**
Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the state of California to cause cancer, and birth defects or other reproductive harm. In addition, certain fluids contained in vehicles and certain products of component wear contain or emit chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm.

**WARNING!**

If your vehicle is involved in an accident, unseen damage may affect your vehicle's drivability and safety.

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## Volvo and the environment

Volvo is committed to the well being of its customers. As a natural part of this commitment, we care about the environment in which we all live. Caring for the environment means an everyday involvement in reducing our environmental impact.
Volvo's environmental activities are based on a holistic view, which means we consider the overall environmental impact of a product throughout its complete life cycle. In this context, design, production, product use, and recycling are all important considerations.
In production, Volvo has partly or completely phased out several chemicals including chloro-fluorocarbons (CFCs), freons, lead chromates, naphtanates, asbestos, mercury and cadmium; and reduced the amount of chemicals used in our plants 50% since 1991.
Volvo was the first in the world to introduce into production a three-way catalytic converter with a heated oxygen sensor in 1976. The current version of this highly efficient system reduces emissions of harmful substances (CO, HC, NOx) from the exhaust pipe by approximately 95% and the search to eliminate the remaining emissions continues. Volvo is the only automobile manufacturer to offer CFC-free retrofit kits for the air conditioning system of all models as far back as the 1975 Volvo 240. Advanced electronic engine controls, refined purification systems and cleaner fuels are bringing us closer to our goal.
After Volvo vehicles and parts have fulfilled their use, recycling is the next critical step in completing the life cycle. The metal content is about 75% of the total weight of a vehicle, which makes the vehicle among the most recycled industrial products. In order to have efficient and well controlled recycling, many Volvo variants have printed dismantling manuals, indicating the weight and material of individual components. For Volvo, all homogeneous plastic parts weighing more than 1.7 oz. (50 grams) are marked with international symbols that indicate how the component is to be sorted for recycling.
In addition to continuous environmental refinement of conventional gasoline-powered internal combustion engines, Volvo is actively looking at advanced technology alternative-fuel vehicles.
When you drive a Volvo, you become our partner in the work to lessen the vehicle's impact on the environment.
To reduce your vehicle's environmental impact, you can:

- Maintain proper air pressure in your tires. Tests have shown decreased fuel economy with improperly inflated tires.
- Follow the recommended maintenance schedule in your Warranty and Service Records Information booklet.

- Drive at a constant speed.
- See an authorized Volvo retailer as soon as possible for inspection if the check engine (malfunction indicator) lamp illuminates, or stays on after the vehicle has started.
- Properly dispose of any vehicle-related waste such as used motor oil, used batteries, brake pads, etc.
- When cleaning your vehicle, use Volvo's own vehicle care products, all of which have systematically been adapted to the environment.

For additional information regarding the environmental activities in which Volvo Cars of North America, LLC and Volvo Car Corporation are involved, visit our Internet home page at: http://www.volvocars.us

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## Important warnings

**Accessory Installation**

- We strongly recommend that Volvo owners install only genuine, Volvo-approved accessories, and that accessory installations be performed only by the factory-trained technicians at your authorized Volvo retailer.
- Genuine Volvo accessories are tested to ensure compatibility with the performance, safety, and emission systems in your vehicle. Additionally, your authorized Volvo retailer knows where accessories may and may not be safely installed in your Volvo. In all cases, please consult your authorized Volvo retailer before installing any accessory in or on your vehicle.
- Accessories that have not been approved by Volvo may or may not be specifically tested for compatibility with your vehicle. Additionally, an inexperienced installer may not be familiar with some of your vehicle's systems.
- Any of your vehicle's performance and safety systems could be adversely affected if you install accessories that Volvo has not tested, or if you allow accessories to be installed by someone unfamiliar with your vehicle.
- Damage caused by unapproved or improperly installed accessories may not be covered by your new vehicle warranty. See your Warranty and Service Records Information booklet for more warranty information. Volvo assumes no responsibility for death, injury, or expenses that may result from the installation of non-genuine accessories.

**Driver Distraction**

- Driver distraction results from driver activities that are not directly related to controlling the vehicle in the driving environment. Your new Volvo is, or can be, equipped with many feature-rich entertainment and communication systems. These include hands-free cellular telephones, navigation systems, and multipurpose audio systems. You may also own other portable electronic devices for your own convenience. When used properly and safely, they enrich the driving experience. Improperly used, any of these could cause a distraction.
- For all of these systems, we want to provide the following warning that reflects the strong Volvo concern for your safety:
- Never use these devices or any feature of your vehicle in a way that distracts you from the task of

driving safely. Distraction can lead to a serious accident.In addition to this general warning, we offer the following guidance regarding specific newer features that may be found in your vehicle:

- Never use a hand-held cellular telephone while driving. Some jurisdictions prohibit cellular telephone use by a driver while the vehicle is moving.
- If your vehicle is equipped with a navigation system, set and make changes to your travel itinerary only with the vehicle parked.
- Never program your audio system while the vehicle is moving. Program radio presets with the vehicle parked, and use your programmed presets to make radio use quicker and simpler.
- Never use portable computers or personal digital assistants while the vehicle is moving.

A driver has a responsibility to do everything possible to ensure his or her own safety and the safety of passengers in the vehicle and others sharing the roadway. Avoiding distractions is part of that responsibility.

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## Occupant safety, Reporting safety defects

### Volvo concern for safety

Safety is the Volvo cornerstone. Our concern dates back to 1927 when the first Volvo rolled off the production line. Three-point seat belts (a Volvo invention), safety cages, and energy-absorbing impact zones were designed into Volvo vehicles long before it was fashionable or required by government regulation. We will not compromise our commitment to safety. We continue to seek out new safety features and to refine those already in our vehicles. You can help. We would appreciate hearing your suggestions about improving automobile safety. We also want to know if you ever have a safety concern with your vehicle. Call us in the U.S. at: 800-458-1552 or in Canada at: 800-663- 8255.

**Occupant safety**
How safely you drive doesn't depend on how old you are but rather on:

- How well you see.
- Your ability to concentrate.
- How quickly you make decisions under stress to avoid an accident.

The tips listed below are suggestions to help you cope with the ever changing traffic environment.
- Never drink and drive.
- If you are taking any medication, consult your physician about its potential effects on your driving abilities.
- Take a driver-retraining course.
- Have your eyes checked regularly.
- Keep your windshield and headlights clean.
- Replace wiper blades when they start to leave streaks.
- Take into account the traffic, road, and weather conditions, particularly with regard to stopping distance.

**Reporting safety defects in the U.S.**
If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Volvo Cars of North America, LLC. If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your retailer, or Volvo Cars of North America, LLC. To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153) or write to: NHTSA, U. S. Department of Transportation, Washington D.C. 20590.

You can also obtain other information about motor vehicle safety from: http://www.safecar.gov

Volvo strongly recommends that if your vehicle is covered under a service campaign, safety or emission recall or similar action, it should be completed as soon as possible. Please check with your local retailer or Volvo Cars of North America, LLC if your vehicle is covered under these conditions.

**NHTSA can be reached at:**
Internet:
http://www.nhtsa.gov
Telephone:
1-888-DASH-2-DOT (1-888-327-4236).

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## Occupant safety, Reporting safety defects

**Reporting safety defects in Canada**
If you believe your vehicle has a defect that could cause a crash or could cause injury or death, you should immediately inform Transport Canada in addition to notifying Volvo Cars of Canada Corp.
To contact Transport Canada, call (800) 333-0510, or (613) 993-9851 if you are calling from the Ottawa region.

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## Seat belts

**Using seat belts**
Volvo, the inventor of the three-point seat belt, urges you and all occupants of your vehicle to wear seat belts and ensure that children are properly restrained, using an infant, car, or booster seat determined by age, weight and height.
Volvo also believes no child should sit in the front seat of a vehicle.
Most states and provinces make it mandatory for occupants of a vehicle to use seat belts.

**Seat belt tensioners**

The seat belts are equipped with tensioners that reduce slack in the belts. These tensioners are triggered in situations where the airbags deploy. The front seat belts also include a tension reducing device which, in the event of a collision, limits the peak forces exerted by the seat belt on the occupant.

**Buckling a seat belt**
Pull the belt out far enough to insert the latch plate into the receptacle until a distinct click is heard. The seat belt retractor is normally "unlocked" and you can move freely, provided that the shoulder belt is not pulled out too far.
The retractor will lock up as follows:
- if the belt is pulled out rapidly
- during braking and acceleration
- if the vehicle is leaning excessively
- when driving in turns

**When wearing the seat belt remember:**
- The belt should not be twisted or turned.
- The lap section of the belt must be positioned low on the hips (not pressing against the abdomen).
- Make sure that the shoulder belt is rolled up into its retractor and that the shoulder and lap belts are taut.

**Unbuckling the seat belt**
To remove the seat belt, press the red section on the seat belt receptacle. Before exiting the vehicle, check that the seat belt retracts fully after being unbuckled. If necessary, guide the belt back into the retractor slot.

**Seat belt reminder**
The seat belt reminder consists of an audible signal, an indicator light above the rearview mirror, and a symbol in the instrument panel that alert the driver and front seat passenger if their seat belts are not fastened.

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## Seat belts

**Seat belt use during pregnancy**

The seat belt should always be worn during pregnancy. But it is crucial that it be worn in the correct way. The diagonal section should wrap over the shoulder then be routed between the breasts and to the side of the belly. The lap section should lay flat over the thighs and as low as possible under the belly. It must never be allowed to ride upward. Remove all slack from the belt and insure that it fits close to the body without any twists.

As a pregnancy progresses, pregnant drivers should adjust their seats and steering wheel such that they can easily maintain control of the vehicle as they drive (which means they must be able to easily operate the foot pedals and steering wheel). Within this context, they should strive to position the seat with as large a distance as possible between their belly and the steering wheel.

**Child seats**

Please refer to page 31 for information on securing child seats with the seat belts.

*Sample label found on all seat belts with tensioners*

**Seat belt maintenance**

Check periodically that the seat belts are in good condition. Use water and a mild detergent for cleaning. Check seat belt mechanism function as follows: attach the seat belt and pull rapidly on the strap.

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## Seat belts

**WARNING!**

- Never use a seat belt for more than one occupant.
- Never wear the shoulder portion of the belt under the arm, behind the back or otherwise out of position. Such use could cause injury in the event of an accident.
- Seat belts lose much of their strength when exposed to violent stretching and should be replaced after any collision, even if they appear to be undamaged.
- Never repair the belt yourself; have this work done by an authorized Volvo service technician only.
- Any device used to induce slack into the shoulder belt portion of the three-point belt system will have a detrimental effect on the amount of protection available to you in the event of a collision.
- The seat back should not be tilted too far back. The shoulder belt must be taut in order to function properly.
- Do not use child safety seats or child booster cushions/backrests in the front passenger's seat. We also recommend that children who have outgrown these devices sit in the rear seat with the seat belt properly fastened.

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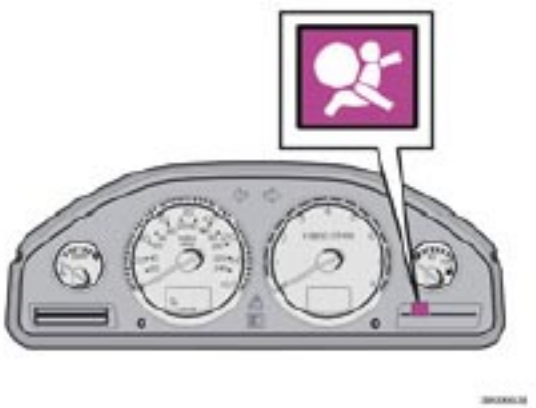
## Supplemental Restraint System (SRS)



**Supplemental Restraint System**

As an enhancement to the three-point seat belts, your Volvo is equipped with a Supplemental Restraint System (SRS). Volvo's SRS consists of seat belt tensioners, front airbags, side impact airbags, the

occupant weight sensor, and inflatable curtains. All of these systems are monitored by the SRS control module. An SRS warning light in the instrument panel (see the illustration above) illuminates when the ignition key is turned to position I, II, or III, and will normally go out after approximately 7 seconds if no faults are detected in the system.
Where applicable, a text message will also be displayed when the SRS warning light illuminates. If this warning symbol is not functioning properly, the general warning symbol ⚠ illuminates and a text message will be displayed.

**⚠WARNING!**

- If the SRS warning light stays on after the engine has started or if it illuminates while you are driving, have the vehicle inspected by a trained and qualified Volvo service technician as soon as possible.
- Never try to repair any component or part of the SRS yourself. Any interference in the system could cause malfunction and serious injury. All work on these systems should be performed by an authorized Volvo service technician.

**⚠WARNING!**

If your vehicle has been subjected to flood conditions (e.g. soaked carpeting/ standing water on the floor of the vehicle) or if your vehicle has become flood-damaged in any way, do not attempt to start the vehicle or put the key in the ignition before disconnecting the battery (see below). This may cause airbag deployment which could result in personal injury. Have the vehicle towed to a trained and qualified Volvo service technician for repairs.

**Automatic transmission:**
Before attempting to tow the vehicle, use the following procedure to override the shiftlock system to move the gear selector to the neutral position:

- Switch off the ignition for at least 10 minutes and disconnect the battery.
- Wait at least one minute.
- Insert the key in the ignition and turn it to position II.
- Press firmly on the brake pedal.
- Move the gear selector from (P)ark to the (N)eutral position.

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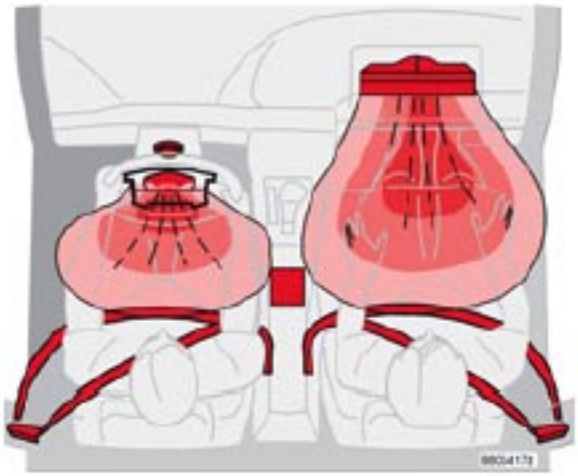
## Front airbags



**The front airbag system**

The front airbags supplement the three-point seat belts. For these airbags to provide the protection intended, seat belts must be worn at all times.

The front airbag system includes gas generators and the airbags. A deceleration sensor activates the gas generators, causing the airbags to be inflated with nitrogen gas.

As the movement of the seats' occupants compresses the airbags, some of the gas is expelled at a controlled rate to provide better cushioning. Both seat belt tensioners also

*Passenger's side airbag–above glove compartment*

deploy, minimizing seat belt slack. The entire process, including inflation and deflation of the airbags, takes approximately one fifth of a second.

The location of the front airbags is indicated by "SRS AIRBAG" embossed on the steering wheel pad and above the glove compartment, and by decals on both sun visors and on the front and far right side of the dash.

- The driver's side front airbag is folded and located in the steering wheel hub.
- The passenger's side front airbag is folded behind a panel located above the glove compartment.

**WARNING!**

- The airbags in the vehicle are designed to be a SUPPLEMENT to - not a replacement for - the three-point seat belts. For maximum protection, wear seat belts at all times. Be aware that no system can prevent all possible injuries that may occur in an accident.
- Never drive a vehicle with a steering wheel-mounted airbag with your hands on the steering wheel pad/airbag housing.
- The front airbags are designed to help prevent serious injury. Deployment occurs very quickly and with considerable force. During normal deployment and depending on variables such as seating position, one may experience abrasions, bruises, swellings, or other injuries as a result from deployment of one or both of the airbags.
- When installing any accessory equipment, make sure that the front airbag system is not damaged. Any interference in the system could cause malfunction.

pg. 17 Safety

## Front airbags

**Front airbag deployment**

- The front airbags are designed to deploy during certain frontal or front-angular collisions, impacts, or decelerations, depending on the crash severity, angle, speed and object impacted. The airbags may also deploy in certain non-frontal collisions where rapid deceleration occurs.
- The SRS sensors, which trigger the front airbags, are designed to react to both the impact of the collision and the inertial forces generated by it, and to determine if the intensity of the collision is sufficient for the seat belt tensioners and/or airbags to be deployed.

However, not all frontal collisions activate the front airbags.

- If the collision involves a nonrigid object (e.g., a snow drift or bush), or a rigid, fixed object at a low speed, the front airbags will not necessarily deploy.
- Front airbags do not normally deploy in a side impact collision, in a collision from the rear or in a rollover situation.
- The amount of damage to the bodywork does not reliably indicate if the airbags should have deployed or not.

**NOTE:**

- Deployment of front airbags occurs only one time during an accident. In a collision where deployment occurs, the airbags and seat belt tensioners activate. Some noise occurs and a small amount of powder is released. The release of the powder may appear as smoke-like matter. This is a normal characteristic and does not indicate fire.
- Volvo's dual-threshold, dual-stage front airbags use special sensors to control deployment. The point

at which the airbag deploys is determined by whether or not the seat belt is being used, as well as the severity of the collision.

- Collisions can occur where only one of the airbags deploys. If the impact is less severe, but severe enough to present a clear injury risk, the dual-stage airbags are triggered at 70-80% of their total capacity. If the impact is more severe, the dual-stage airbags are triggered at full capacity.

Should you have questions about any component in the SRS system, please contact a trained and qualified Volvo service technician or Volvo Customer Support:

**In the USA**:
Volvo Cars of North America, LLC
Customer Care Center
P.O. Box 914
Rockleigh, New Jersey 07647-0914
1-800-458-1552
www.volvocars.us

**In Canada**:
Volvo Cars of Canada Corp.
National Customer Service
175 Gordon Baker Road
North York, Ontario M2H 2N7
1-800-663-8255
www.volvocanada.com

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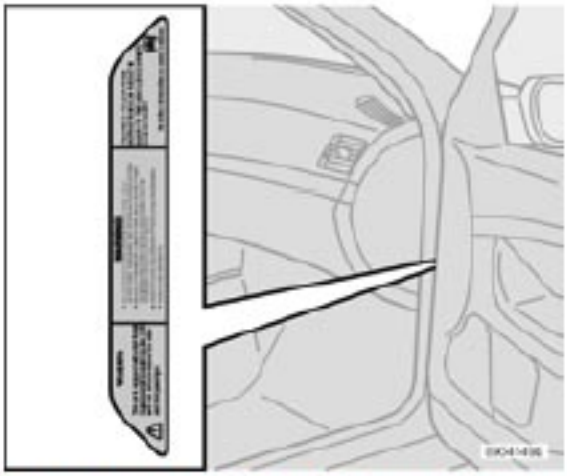
## Front airbags

**WARNING!**

- Do not use child safety seats or child booster cushions/backrests in the front passenger's seat. We also recommend that occupants under 4 feet 7 inches (140 cm) in height who have outgrown these devices sit in the rear seat with the seat belt fastened[1].
- Never drive with the airbags deployed. The fact that they hang out can impair the steering of your vehicle. Other safety systems can also be damaged.
- The smoke and dust formed when the airbags are deployed can cause skin and eye irritation in the event of prolonged exposure.

*Airbag decal on outside of both sun visors*

*Airbag decal on the passenger's dashboard*



*Airbag decal in the front passenger's door opening*

1. See also the Occupant Weight Sensor information on page 20.

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## Front airbags

**WARNING!**

- Children must never be allowed in the front passenger's seat. Volvo recommends that ALL occupants (adults and children) shorter than 4 feet 7 inches (140 cm) be seated in the back seat of any vehicle with a passenger-side front airbag. See page 30 for guidelines.
- Occupants in the front passenger's seat must never sit on the edge of the seat, sit leaning toward the instrument panel or otherwise sit out of position.
- The occupant's back must be as upright as comfort allows and be against the seat back with the seat belt properly fastened.
- Feet must be on the floor, e.g., not on the dash, seat or out of the window.

**WARNING!**

- No objects or accessory equipment, e.g. dashboard covers, may be placed on, attached to, or installed near the air bag hatch (the area above the glove compartment) or the area affected by airbag deployment (see the illustration on page 16).
- There should be no loose articles, e.g. coffee cups, on the floor, seat, or dashboard area.
- Never try to open the airbag cover on the steering wheel or the passenger's side dashboard. This should only be done by a trained and qualified Volvo service technician.

**Failure to follow these instructions can result in injury to the vehicle occupants.**

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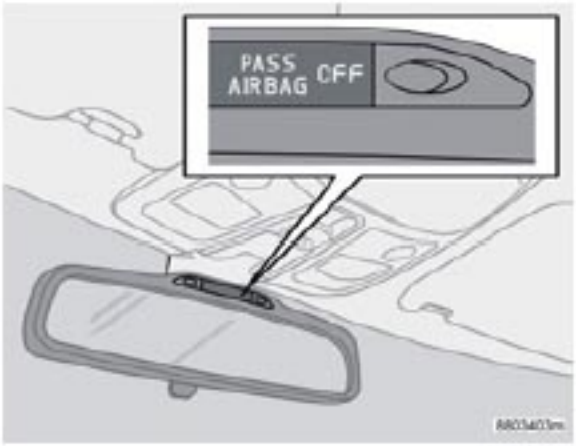
## Occupant Weight Sensor (OWS)




*Occupant Weight Sensor (OWS) indicator light*

**Disabling the passenger's side front airbag**

Volvo recommends that ALL occupants (adults and children) shorter than 4 feet 7 inches (140 cm) be seated in the rear seat of any vehicle with a passenger's side front airbag, and be properly restrained. Children should always be seated in child restraints appropriate for their size and weight. See also the child safety recommendations beginning on page 31.

The Occupant Weight Sensor (OWS) is designed to meet the regulatory requirements of Federal Motor Vehicle Safety Standard (FMVSS) 208 and is designed to disable (will not inflate) the passenger's side front airbag under certain conditions. The OWS works with sensors that are part of the front passenger's seat and seat belt. The sensors are designed to detect the presence of a properly seated occupant and determine if the passenger's side front airbag should be enabled (may inflate) or disabled (will not inflate).

The OWS will disable (will not inflate) the passenger's side front airbag when:
- the front passenger's seat is unoccupied, or has small/medium objects in the front seat,
- the system determines that an infant is present in a rear-facing infant seat that is installed according to the manufacturer's instructions,
- the system determines that a small child is present in a forward-facing child restraint that is installed according to the manufacturer's instructions,
- the system determines that a small child is present in a booster seat,
- a front passenger takes his/her weight off of the seat for a period of time,
- a child or a small person occupies the front passenger's seat. The OWS uses a PASSENGER AIRBAG OFF indicator lamp which will illuminate and stay on to remind you that the passenger's side front airbag is disabled. The PASSENGER AIRBAG OFF indicator lamp is located in the overhead console, near the base of the rearview mirror.

**NOTE:** The PASSENGER AIRBAG OFF indicator lamp will illuminate for a short period of time when the ignition is turned on to confirm it is functional. When the front passenger's seat is not occupied (empty seat) or in the event that the passenger's side front airbag is enabled (may inflate), the PASSENGER AIRBAG OFF indicator lamp will be off.

**However, if a fault is detected in the system:**
- The OWS indicator light will stay on.
- The SRS warning light (see page 15) will come on and stay on.
- The message PASS. AIRBAG OFF SERVICE URGENT will be displayed in the information display.

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## Occupant Weight Sensor (OWS)

**WARNING!**

If a fault in the system is detected and indicated as explained on the previous page, be aware that the passenger's side front airbag will not deploy in the event of a collision.
In this case, the safety systems and Occupant Weight Sensor should be inspected by an authorized Volvo retailer as soon as possible.

**WARNING!**

- Never try to open, remove, or repair any components in the OWS system. This could result in system malfunction. Maintenance or repairs should only be carried out by an authorized Volvo service technician.
- The front passenger's seat should not be modified in any way. This could reduce pressure on the seat cushion, which might interfere with the OWS system's function.

The OWS is designed to disable (will not inflate) the passenger's side front airbag when a rear facing infant seat, a forward-facing child restraint, or a booster seat is detected. The PASSENGER AIRBAG OFF indicator lamp will illuminate and stay on to remind you that the passenger's side front airbag is disabled (see the following table).

| Passenger's Seat occupancy status | OWS Indicator light status | Passenger's side front airbag status |
|---|---|---|
| Seat unoccupied | OWS indicator light PASS AIRBAG OFF is not lit | Passenger's side front airbag **disabled** |
| Seat occupied by low weight occupant/ object[1] | OWS indicator light PASS AIRBAG OFF lights up | Passenger's side front airbag **disabled** |
| Seat occupied by heavy occupant/ object | OWS indicator light PASS AIRBAG OFF is not lit | Passenger's side front airbag **enabled** |

1. Volvo recommends that children always be properly restrained in appropriate child restraints in the rear seats. In rare situations when the seat belt is not properly fastened, some child restraints may not be detected by the OWS because there is very little weight on the vehicle seat cushion. In these cases the passenger's side front airbag may be disabled, but the PASSENGER AIRBAG OFF indicator lamp will not be lit. Do not assume that the passenger's side front airbag is disabled unless the PASSENGER AIRBAG OFF indicator lamp is lit. Make sure the child restraint is properly installed (turn the vehicle off, remove the child restraint from the vehicle and reinstall the restraint following the child restraint manufacturer's instructions) and that the PASSENGER AIRBAG OFF indicator lamp is on, or move the child restraint to the rear seat.

The OWS is designed to enable (may inflate) the passenger's side front airbag anytime the system senses that a person of adult size is sitting properly in the front passenger's seat. The PASSENGER AIRBAG

OFF indicator lamp will be off and remain off.
If a person of adult size is sitting in the front passenger's seat, but the PASSENGER AIRBAG OFF indicator lamp is on, it is possible that the person isn't sitting properly in the seat. If this happens:

- Turn the vehicle off and ask the person to place the seat back in an upright position.

pg. 22 Safety

## Occupant Weight Sensor (OWS)

- Have the person sit upright in the seat, centered on the seat cushion, with the person's legs comfortably extended.
- Restart the vehicle and have the person remain in this position for about two minutes. This will allow the system to detect that person and enable the passenger's frontal airbag.
- If the PASSENGER AIRBAG OFF indicator lamp remains on even after this, the person should be advised to ride in the rear seat.

This condition reflects limitations of the OWS classification capability. It does not indicate OWS malfunction.

**Modifications**
If you are considering modifying your vehicle in any way to accommodate a disability, for example by altering or adapting the driver's or front passenger's seat(s) and/or airbag systems, please contact Volvo at:

**In the USA**:
Volvo Cars of North America, LLC
Customer Care Center
P.O. Box 914
Rockleigh, New Jersey 07647-0914
1-800-458-1552

**In Canada**:
Volvo Cars of Canada Corp.
National Customer Service
175 Gordon Baker Road
North York, Ontario M2H 2N7
1-800-663-8255

**WARNING!**

- No objects that add to the total weight on the seat should be placed on the front passenger's seat. If a child is seated in the front passenger's seat with any additional weight, this extra weight could cause the OWS system to enable the airbag, which might cause it to deploy in the event of a collision, thereby injuring the child.
- The seat belt should never be wrapped around an object on the front passenger's seat. This could interfere with the OWS system's function.
- The front passenger's seat belt should never be used in a way that exerts more pressure on the passenger than normal. This could increase the pressure exerted on the weight sensor by a child, and could result in the airbag being enabled, which might cause it to deploy in the event of a collision, thereby injuring the child.

pg. 23 Safety

## Occupant Weight Sensor (OWS)

**WARNING!**

Keep the following points in mind with respect to the OWS system. Failure to follow these instructions could adversely affect the system's function and result in serious injury to the occupant of the front passenger's seat:

- The full weight of the front seat passenger should always be on the seat cushion. The passenger should never lift him/herself off the seat cushion using the armrest in the door or the center console, by pressing the feet on the floor, by sitting on the edge of the seat cushion, or by pressing against the backrest in a way that reduces pressure on the seat cushion. This could cause OWS to disable the front passenger's side airbag.
- Do not place any type of object on the front passenger's seat in such a way that jamming, pressing, or squeezing occurs between the object and the front seat, other than as a direct result of the correct use of the ALR/ELR seat belt (see page 30).
- No objects should be placed under the front passenger's seat. This could interfere with the OWS system's function.

pg. 24 Safety

## Side impact (SIPS) airbag

*Location of the side impact (SIPS) airbag*

**Side impact airbags - front seats only**

As an enhancement to the structural side impact protection built into your vehicle, the vehicle is also equipped with Side Impact Protection System (SIPS) airbags.

The SIPS airbag system is designed to help increase occupant protection in the event of certain side impact collisions. The SIPS airbags are designed to deploy only during certain side-impact collisions, depending on the crash severity, angle, speed and point of impact.

**NOTE:** SIPS airbag deployment (one airbag) occurs only on the side of the vehicle affected by the impact. The airbags are not designed to deploy in all side impact situations.

**Components in the SIPS airbag system**

This SIPS airbag system consists of gas generators and side airbag modules built into the outboard sides of both front seat backrests.

**WARNING!**

- The SIPS airbag system is a supplement to the structural Side Impact Protection System and the three-point seat belt system. It is not designed to deploy during collisions from the front or rear of the vehicle or in rollover situations.
- The use of seat covers on the front seats may impede SIPS airbag deployment.
- No objects, accessory equipment or stickers may be placed on, attached to or installed near the SIPS airbag system or in the area affected by SIPS airbag deployment.
- Never try to open or repair any components of the SIPS airbag system. This should be done only by a trained and qualified Volvo service technician.
- In order for the SIPS airbag to provide its best protection, both front seat occupants should sit in an upright position with the seat belt properly fastened.
- Failure to follow these instructions can result in injury to the occupants of the vehicle in the event of an accident.

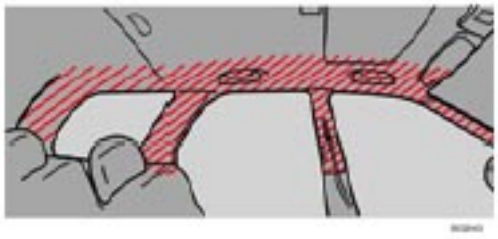
pg. 25 Safety

## Volvo Inflatable Curtain (VIC)

*7-seat model shown*

This system consists of inflatable curtains located along the sides of the roof liners, stretching from the front side windows to the rear edge of the rear side windows. It is designed to help protect the heads of the occupants of the front seats and the occupants of the outboard rear seating positions, including the outboard passenger in the optional third row of seats in certain side impact collisions.
The inflatable curtains in the Volvo XC90 are also designed to help protect the occupants of the vehicle in a roll-over situation, and to help prevent them from being thrown from the vehicle if a roll-over occurs.

**NOTE:** In 5-seat models, the Inflatable Curtains extend to protect both rows of seats. In 7-seat models, they extend to protect all three rows.



By design, the IC system deploys only on the side of the vehicle affected by the impact.
However, in certain side impacts, or in a rollover situation, **BOTH** the Inflatable Curtains (IC) and the Side Impact Airbag System (SIPS-bag) will deploy, whereas, in some cases, **ONLY** the Inflatable Curtain (IC) will deploy. In cases where **BOTH** the IC and the SIPS-bag deploy, deployment will occur simultaneously.

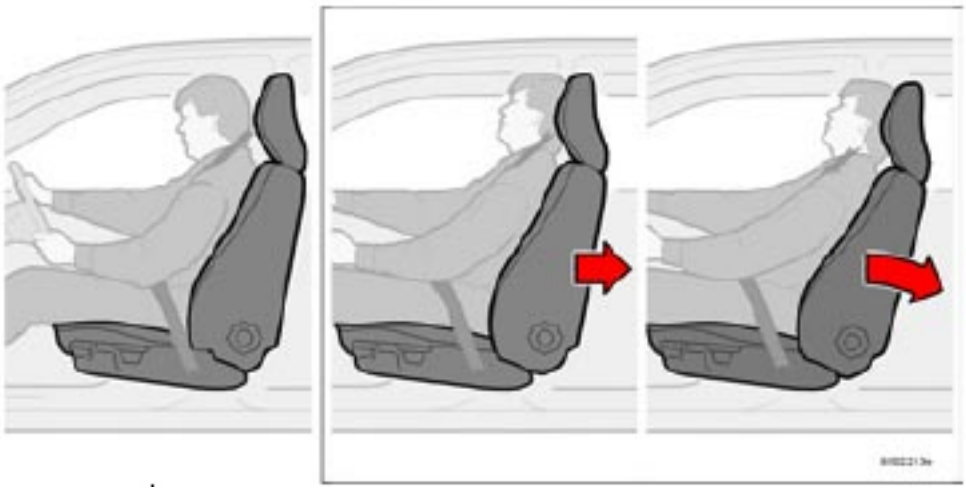
**NOTE:** If the Inflatable Curtain deploys, it remains inflated for approximately 5 seconds.

**WARNING!**

- The VIC system is a supplement to the Side Impact Protection System. It is not designed to deploy during collisions from the front or rear of the vehicle or in all rollover situations.
- Never try to open or repair any components of the VIC system. This should be done only by a trained and qualified Volvo service technician.

pg. 26 Safety

## Whiplash Protection System (WHIPS)



**WARNING!**

In order for the VIC to provide its best protection, both front seat occupants and both outboard rear seat occupants should sit in an upright position with the seat belt properly fastened; adults using the seat belt and children using the proper child restraint system. Only adults should sit in the front seats. Children must never be allowed in the front passenger seat. See page 30 for guidelines. Failure to follow these instructions can result in injury to the vehicle occupants in an accident.

**Whiplash Protection System (WHIPS) - front seats only**

The WHIPS system consists of specially designed hinges and brackets on the front seat backrests designed to help absorb some of the energy generated in a collision from the rear (when the vehicle is "rear-ended").

In the event of a collision of this type, the hinges and brackets of the front seat backrests are designed to change position slightly to allow the backrest/head restraint to help support the occupant's head before moving slightly rearward. This movement helps absorb some of the forces that could result in whiplash.

**WARNING!**

- The WHIPS system is designed to supplement the other safety systems in your vehicle. For this system to function properly, the three-point seat belt must be worn. Please be aware that no system can prevent all possible injuries that may occur in an accident.
- The WHIPS system is designed to function in certain collisions from the rear, depending on the crash severity, angle and speed.

pg. 27 Safety

## Whiplash Protection System (WHIPS)

**WARNING!**

Occupants in the front seats must never sit out of position. The occupant's back must be as upright as comfort allows and be against the seat back with the seat belt properly fastened.

pg. 28 Safety

## Child safety

**WARNING!**

- Boxes, suitcases, etc. wedged behind the front seats could impede the function of the WHIPS system.
- If the rear seat backrests are folded down, cargo must be secured to prevent it from sliding forward against the front seat backrests in the event of a collision from the rear. This could interfere with the action of the WHIPS system.
- If your vehicle has been involved in a rear-end collision, the front seat backrests must be inspected by a trained and qualified Volvo service technician, even if the seats appear to be undamaged. Certain components in the WHIPS system may need to be replaced.
- Do not attempt to service any component in the WHIPS system yourself.
- Any contact between the front seat backrests and the folded rear seat could impede the function of the WHIPS system. If the rear seat is folded down, the occupied front seats must be adjusted forward so that they do not touch the folded rear seat.

**Children should be seated safely**

Volvo recommends the proper use of restraint systems for all occupants including children. Remember that, regardless of age and size, a child should always be properly restrained in a vehicle.

Your vehicle is also equipped with ISOFIX/ LATCH attachments, which make it more convenient to install child seats.

Some restraint systems for children are designed to be secured in the vehicle by lap belts or the lap portion of a lap-shoulder belt. Such child restraint systems can help protect children in vehicles in the event of an accident only if they are used properly. However, children could be endangered in a crash if the child restraints are not properly secured in the vehicle. Failure to follow the installation instructions

for your child restraint can result in your child striking the vehicle's interior in a sudden stop.
Holding a child in your arms is NOT a suitable substitute for a child restraint system. In an accident, a child held in a person's arms can be crushed between the vehicle's interior and an unrestrained person. The child could also be injured by striking the interior, or by being ejected from the vehicle during a sudden maneuver or impact. The same can also happen if the infant or child rides unrestrained on the seat. Other occupants should also be properly restrained to help reduce the chance of injuring or increasing the injury of a child.
All states and provinces have legislation governing how and where children should be carried in a vehicle. Find out the regulations existing in your state or province. Recent accident statistics have shown that children are safer in rear seating positions than front seating positions when properly restrained. A child restraint system can help protect a child in a vehicle. Here's what to look for when selecting a child restraint system:

- It should have a label certifying that it meets applicable Federal Motor Vehicle Safety Standards (FMVSS 213) - or in Canada, CMVSS 213.
- Make sure the child restraint system is approved for the child's height, weight and development - the label required by the standard or regulation, or instructions for infant restraints, typically provide this information.
- In using any child restraint system, we urge you to carefully look over the instructions that are provided with the restraint. Be sure you understand them and can use the device properly and safely in this vehicle. A misused child restraint system

pg. 29 Safety

## Child safety

can result in increased injuries for both the infant or child and other occupants in the vehicle.

When a child has outgrown the child safety seat, you should use the rear seat with the standard seat belt fastened. The best way to help protect the child here is to place the child on a cushion so that the seat belt is properly located on the hips (see the illustration on page 40). Legislation in your state or province may mandate the use of a child seat or cushion in combination with the seat belt, depending on the child's age and/or size. Please check local regulations.
A specially designed and tested booster cushion (not available in Canada) can be obtained from your Volvo retailer for children weighing 33 - 80 lb. (15 - 36 kg) and 38-54 inches (97 - 137 cm) in height.

**WARNING!**

- Do not use child safety seats or child booster cushions/backrests in the front passenger's seat. We also recommend that children under 4 feet 7 inches (140 cm) in height who have outgrown these devices sit in the rear seat with the seat belt fastened.
- On hot days, the temperature in the vehicle interior can rise very quickly. Exposure to these high temperatures for even a short period of time can cause heat-related injury or death. Small children are particularly at risk.

pg. 30 Safety

## Child safety

**Automatic Locking Retractor/ Emergency Locking Retractor**
To make child seat installation easier, each seat belt (except for the driver's belt) is equipped with a locking mechanism to help keep the seat belt taut.
When attaching the seat belt to a child seat:
- Attach the seat belt to the child seat according to the child seat manufacturer's instructions.
- Pull the seat belt out as far as possible.
- Insert the seat belt latch plate into the buckle (lock) in the usual way.
- Release the seat belt and pull it taut around the child seat.

**A sound from the seat belt retractor will be audible at this time and is normal.**

The belt will now be locked in place.

T**his function is automatically disabled when the seat belt is unlocked and the belt is fully retracted**.

**WARNING!**

Do not use child safety seats or child booster cushions/backrests in the front passenger's seat. We also recommend that children who have outgrown these devices sit in the rear seat with the seat belt properly fastened.

**Volvo's recommendations**
Why does Volvo believe that no child should sit in the front seat of a vehicle? It's quite simple really. A front airbag is a very powerful device designed, by law, to help protect an adult.
Because of the size of the airbag and its speed of inflation, a child should never be placed in the front

seat, even if he or she is properly belted or strapped into a child safety seat. Volvo has been an innovator in safety for over seventy-five years, and we'll continue to do our part. But we need your help. Please remember to put your children in the back seat, and buckle them up.

**Volvo has some very specific recommendations:**

- Always wear your seat belt.
- Airbags are a SUPPLEMENTAL safety device which, when used with a three-point seat belt can help reduce serious injuries during certain types of accidents. Volvo recommends that you do not disconnect the airbag system in your vehicle.
- Volvo strongly recommends that everyone in the vehicle be properly restrained.
- Volvo recommends that ALL occupants (adults and children) shorter than 4 feet 7 inches (140 cm) be seated in the back seat of any vehicle with a front passenger side airbag.

Drive safely!

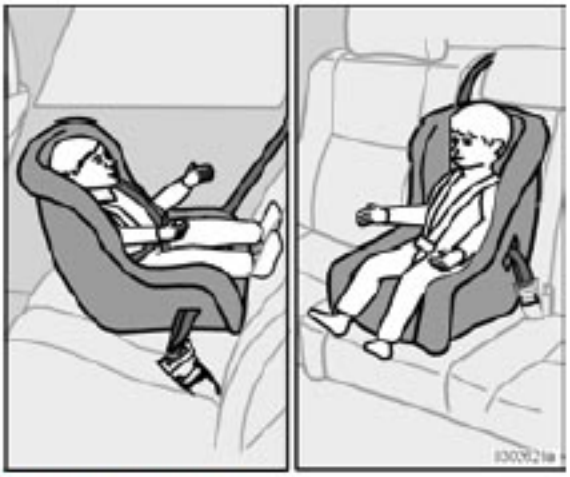
pg. 31 Safety

## Child restraint systems

**Child restraints**

There are three main types of child restraint systems: infant seats, convertible seats, and booster cushions. They are classified according to the child's age and size.

The following section provides **general information** on securing a child restraint using a three-point seat belt. Refer to pages 39-40 for information on securing a child restraint using ISOFIX lower anchors and/or top tether anchorages.



*Convertible seat*

**WARNING!**

A child seat should never be used in the front passenger seat of any vehicle with a front passenger airbag - not even if the "Passenger airbag off" symbol near the rear-view mirror is illuminated (on vehicles equipped with Occupant Weight Sensor). If the severity of an accident were to cause the airbag to inflate, this could lead to serious injury or death to a child seated in this position.

*Booster cushion*

**WARNING!**

Always refer to the child restraint manufacturer's instructions for detailed information on securing the restraint.

pg. 32 Safety

## Child restraint systems

**WARNING!**

- When not in use, keep the child restraint system secured or remove it from the passenger compartment to help prevent it from injuring passengers in the event of a sudden stop or collision.
- A small child's head represents a considerable part of its total weight and its neck is still very weak. Volvo recommends that children up to age 4 travel, properly restrained, facing rearward. In addition, Volvo recommends that children should ride rearward facing, properly restrained, as long as possible.

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## Infant seats

*Do not place the infant seat in the front passenger's seat*

**Securing an infant seat with a seat belt**

**NOTE:** Refer to pages 38-39 for information on securing a child restraint using ISOFIX lower anchors and/or top tether anchorages.

1. Place the infant seat in the rear seat of the vehicle.
2. Attach the seat belt to the infant seat according to the manufacturer's instructions.
3. Fasten the seat belt by inserting the latch plate into the buckle (lock) until a distinct click is audible.

Positioning the seat belt through the infant seat

**WARNING!**

- An infant seat must be in the rear-facing position only.
- The infant seat should not be positioned behind the driver's seat unless there is adequate space for safe installation.

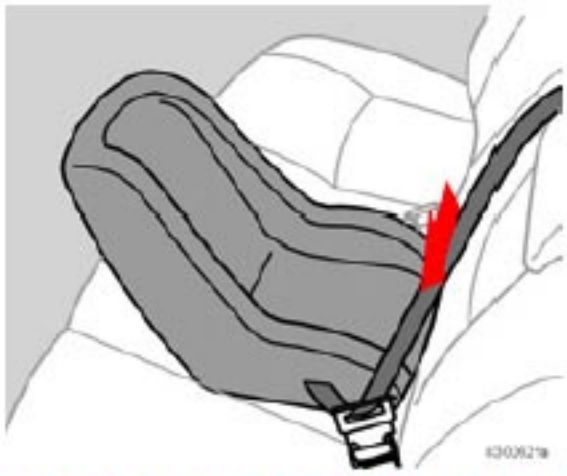
*Fasten the seat belt*

**WARNING!**

A child seat should never be used in the front passenger seat of any vehicle with a front passenger airbag - not even if the "Passenger airbag off" symbol near the rear-view mirror is illuminated (on vehicles equipped with Occupant Weight Sensor). If the severity of an accident were to cause the airbag to inflate, this could lead to serious injury or death to a child seated in this position.

pg. 34 Safety

## Infant seats



*Pull out the shoulder section of the seat belt*

4. Pull the shoulder section of the seat belt out as far as possible to activate the belt's automatic locking function.
5. Press the infant seat firmly in place, let the seat belt retract and pull it taut. A sound from the seat belt retractor's automatic locking function will be audible at this time and is normal. The seat belt should now be locked in place.

**NOTE:** The locking retractor will automatically release when the seat belt is unbuckled and allowed to retract fully.

*Ensure that the seat is securely in place*

6. Push and pull the infant seat to ensure that it is held securely in place by the seat belt.

**WARNING!** It should not be possible to move the child restraint more than 1 in. (2.5 cm) in any direction.

The infant seat can be removed by unbuckling the seat belt and letting it retract completely.

pg. 35 Safety

## Convertible seats

*Do not place the convertible seat in the front passenger's seat*

**Securing a convertible seat with a seat belt**

**NOTE:** Refer to pages 38-39 for information on securing a child restraint using ISOFIX lower anchors and/or top tether anchorages.

Convertible seats can be used in either a forward or rearward-facing position, depending on the age and size of the child.

*Route the seat belt through the convertible seat*

**WARNING!**

Always use a convertible seat that is suitable for the child's age and size. See the convertible seat manufacturer's recommendations.

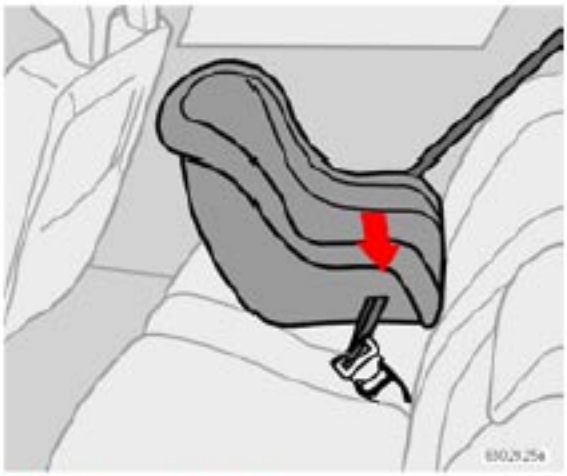
1. Place the convertible seat in the rear seat of the vehicle.
2. Attach the seat belt to the convertible seat according to the manufacturer's instructions.

**WARNING!**

- A small child's head represents a considerable part of its total weight and its neck is still very weak. Volvo recommends that children up to age 4 travel, properly restrained, facing rearward. In addition, Volvo recommends that children should ride rearward facing, properly restrained, as long as possible.
- Convertible child seats should be installed in the rear seat only.
- A rear-facing convertible seat should not be positioned behind the driver's seat unless there is adequate space for safe installation.

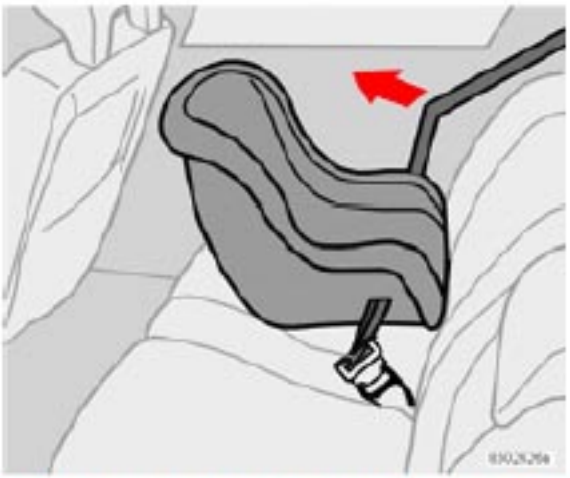
pg. 36 Safety

## Convertible seats



*Fasten the seat belt*

3. Fasten the seat belt by inserting the latch plate into the buckle (lock) until a distinct click is audible.
4. Pull the shoulder section of the seat belt out as far as possible to activate the belt's automatic locking function.
5. Press the convertible seat firmly in place, let the seat belt retract and pull it taut. A sound from the seat belt retractor's automatic locking function will be audible at this time and is normal. The seat belt should now be locked in place.



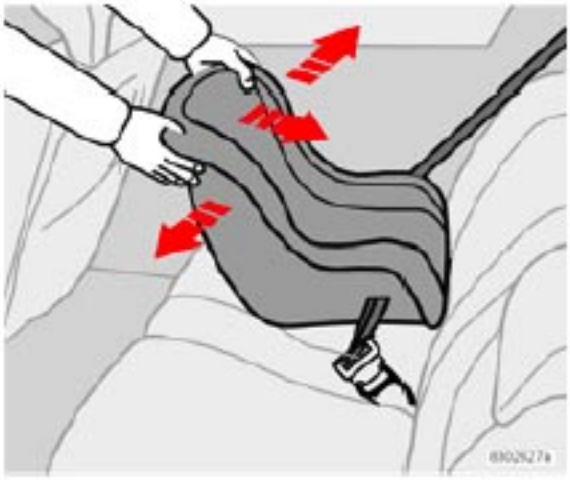
*Pull out the shoulder section of the seat belt*

**NOTE:** The locking retractor will automatically release when the seat belt is unbuckled and allowed to retract fully.
6. Push and pull the convertible seat to ensure that it is held securely in place by the seat belt.

**WARNING!**

It should not be possible to move the child restraint more than 1 in. (2.5 cm) in any direction.

The convertible seat can be removed by unbuckling the seat belt and letting it retract completely.



*Ensure that the seat is securely in place*

**WARNING!**

A child seat should never be used in the front passenger seat of any vehicle with a front passenger airbag - not even if the "Passenger airbag off" symbol near the rear-view mirror is illuminated (on vehicles equipped with Occupant Weight Sensor). If the severity of an accident were to cause the airbag to inflate, this could lead to serious injury or death to a child seated in this position.

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## Booster cushions

*Position the child correctly on the booster cushion*

**Securing a booster cushion**

1. Booster cushions are recommended for children who have outgrown convertible seats.
2. Place the booster cushion in the rear seat of the vehicle.
3. With the child properly seated on the booster cushion, attach the seat belt to or around the cushion according to the manufacturer's instructions.

Fasten the seat belt by inserting the latch plate into the buckle (lock) until a distinct click is audible.

*Positioning the seat belt*

4. Ensure that the seat belt is pulled taut and fits snugly around the child.

**WARNING!**

- The hip section of the three-point seat belt must fit snugly across the child's hips, not across the stomach.
- The shoulder section of the three-point seat belt should be positioned across the chest and shoulder.
- The shoulder belt must never be placed behind the child's back or under the arm.

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## ISOFIX lower anchors

ISOFIX lower child restraint anchors

**Using the ISOFIX lower child seat anchors**

Lower anchors for ISOFIX-equipped child seats are located in the second row, outboard seats, hidden below the backrest cushions. Symbols on the seat back upholstery mark the anchor positions (see the illustration above).

**To access the anchors:**

1. Put the child restraint in position.
2. Kneel on the child restraint to press down the seat cushion and locate the anchors by feel.
3. Fasten the attachment on the child restraint's lower straps to the ISOFIX lower anchors.
4. Firmly tension the lower child seat straps according to the manufacturer's instructions.

**NOTE:**

- The rear seat's center position is not equipped with ISOFIX lower anchors. When installing a child restraint in this position, attach the restraint's top tether strap (if it is so equipped) to the top tether anchorage point (see the information on page 39) and secure the restraint with the vehicle's center seat belt (see the information beginning on page 31).
- Always follow your child seat manufacturer's installation instructions, and use both ISOFIX lower anchors and top tethers whenever possible.

*Fasten the attachment correctly to the ISOFIX lower anchors*

**WARNING!**

Be sure to fasten the attachment correctly to the anchor (see the illustration above). If the attachment is not correctly fastened, the child restraint may not be properly secured in the event of a collision.

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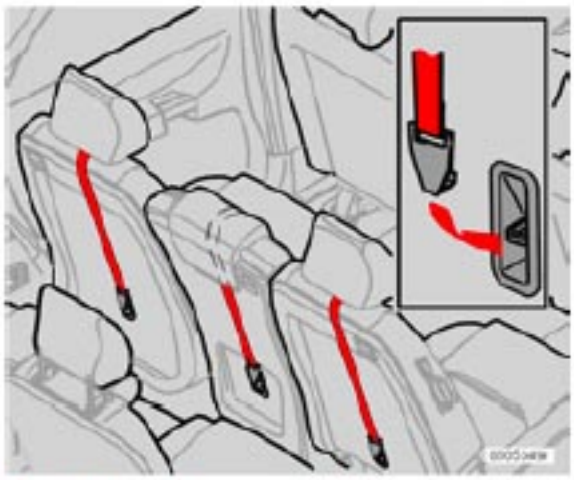
## Top tether anchors



*Top tether anchorage points*

**Top tether anchors**

Your vehicle is equipped with child restraint top tether anchorages in all second row seat positions (second-row seats only in 7-seat models).

**Using the top tether anchorages**
- Place the child restraint on the rear seat.
- Route the top tether strap under the head restraint and fasten its attachment to the anchorage.
- Firmly tension the top tether strap according to the child restraint manufacturer's instructions. Tension the top tether strap only after the lower anchor straps or the seat belt have been firmly tensioned.

See page 38 for on securing the child restraint to ISOFIX lower anchors.

**WARNING!**

- Never route a top tether strap over the top or around the head restraint. It should always be routed under the head restraint.
- Child restraint anchorages are designed to withstand only those loads imposed by correctly fitted child restraints. Under no circumstances are they to be used for adult seat belts or harnesses. The anchorages are not able to withstand excessive forces on them in the event of collision if full harness seat belts or adult seat belts are installed to them. An adult who uses a belt anchored in a child restraint anchorage runs a great risk of suffering severe injuries should a collision occur.
- Do not install rear speakers that require the removal of the top tether anchors or interfere with the proper use of the top tether strap.

**NOTE:**
- Child restraints could be recalled for safety reasons. You must register your child restraint to be reached in a recall. To stay informed about child safety seat recalls, be sure to fill out and return the registration card that comes with new child restraints.
- Child restraint recall information is readily available in both the U.S. and Canada. For recall information in the U.S., call the U.S. Government's Auto Safety Hotline at 1- 800-424-9393. In Canada, visit Transport Canada's Child Safety website at http://www.tc.gc.ca/roadsafety/childsafety/menu.htm.

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## Integrated booster cushion

*Integrated booster cushion*

**Integrated booster cushion (option)**

Volvo's own integrated booster cushion has been specially designed to help safeguard a child seated in the rear seat. When using an integrated booster cushion, the child must be secured with the vehicle's three-point seat belt.

Use this booster cushion only with children who weigh between 33 and 80 lbs (15 and 36 kg) and whose height is between 38 and 54 in (97 and 137 cm). In Canada, Transport Canada's weight recommendation is 40-80 lbs (18-36 kg).

The booster cushion is designed to raise the child higher, so that the shoulder strap crosses over the child's collarbone, not over the child's neck. If using a booster cushion does not result in proper positioning of the shoulder strap, then the child should be placed in a properly secured child restraint (see the information beginning on page 31). The shoulder belt must never be placed behind the child's back or under the arm.

Canada only: This cushion may be referred to as a built-in booster cushion.

**WARNING!**

- DEATH or SERIOUS INJURY can occur.
- Follow all instructions on the booster cushion and in the vehicle's owner's manual.
- MAKE SURE THE BOOSTER CUSHION IS SECURELY LOCKED BEFORE THE CHILD IS SEATED.
- Use this booster cushion only with children who weigh between 33 and 80 lbs (15 and 36 kg) and whose height is between 38 and 54 in (97 and 137 cm). In Canada, Transport Canada's weight recommendation is 40-80 lbs (18-36 kg).

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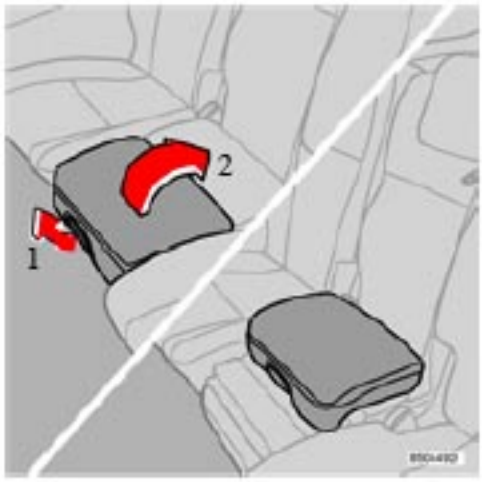
## Integrated booster cushion




**Raising**
- Pull the handle at the front of the cushion (1) forward.
- Move the seat belt latch aside before raising the cushion.
- With both hands push the cushion rearward (2).
- Push the cushion until it locks in place.

**Lowering**
- Pull the handle at the front of the cushion (1) forward.
- Pull the seat forward and press it down until it locks in place.

The booster cushion must be pressed down before the backrest can be folded down.

**WARNING!**

In the event of a collision while the integrated booster cushion was occupied, the entire booster cushion and seat belt must be replaced. The booster cushion should also be replaced if it is badly worn or damaged in any way. This work should be performed by an authorized Volvo retailer only.

pg. 42 Safety

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# 2007 VOLVO XC90

## Instruments and controls

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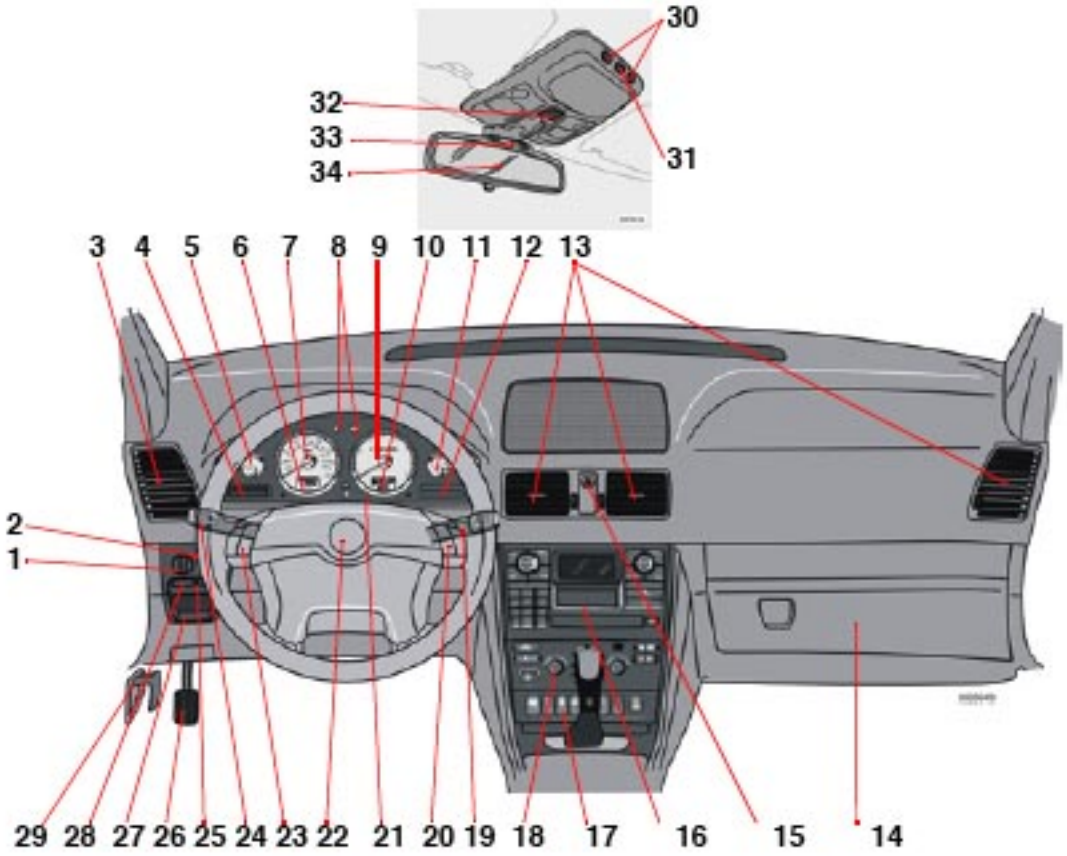
## Instrument overview

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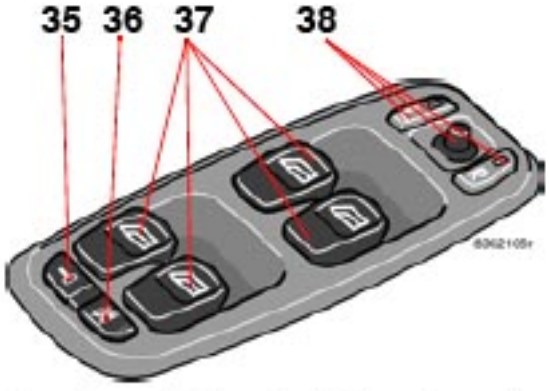
## Instrument overview




*Control panel in the driver's door (controls 35-38)*

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## Instrument panel

**1. Turn signal indicators - right/left**

**2. Text window**
The text window displays information and warning messages.

**3. Temperature gauge**
The pointer should be approximately midway on the gauge when driving. **Do not drive the vehicle if the warning light is on**. The text window will provide you with additional information.
If the engine temperature remains high, check coolant level - see page 184.

**4. Trip odometer**
The trip odometers are used for measuring shorter distances. The right-hand digit gives tenth of a mile/ kilometer. Press the button for more than 2 seconds to reset. Change between trip odometers 1 and 2 using one short press on the button.

**5. Odometer**

**6. Speedometer**

**7. Warning symbol**

**8. High beam indicator**

**9. Tachometer**
The tachometer shows engine speed in thousands of revolutions per minute (rpm). Do not drive continuously with the needle in the red area of the dial, which indicates maximum allowable engine rpm range. Instead, shift to a higher gear or slow the vehicle down. The engine management system will automatically prevent excessively high engines speeds. This will be noticeable as a pronounced unevenness in engine speed.

**10. Gear and driving mode indicator**
The currently selected driving mode is displayed here. If you use the Geartronic function on the automatic transmission, the currently selected gear will be displayed.

**11. Ambient temperature gauge**
This display indicates the air temperature outside your vehicle. A "snowflake" symbol in the text window is displayed when the temperature is in the range of 23 - 36 °F (-5 - +2 °C). Please note that this symbol does not indicate a fault with your vehicle. At low speeds or when the vehicle is not moving, the temperature readings may be slightly higher than the actual ambient temperature.

**12. Clock/set button**
Turn the button to set the clock.

**13. Fuel gauge**
The fuel tank holds approximately 21.1 US gals. (80 liters).
When the warning light in the gauge comes on, there are approximately 2.1 US gal. (8 liters) of fuel remaining in the tank.

**14. Indicator and warning symbols**

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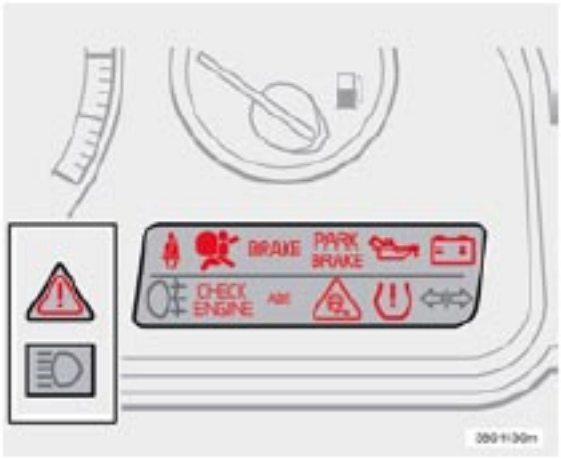
## Indicator and warning symbols




The indicator and warning symbols light up when you turn the ignition key to the driving position (position II) before starting. This shows that the symbols are functioning. When the engine starts, all symbols go out. If the engine is not started within 5 seconds, all symbols except CHECK ENGINE and go out. Certain symbols may not have their functions illustrated, depending on the vehicle's equipment. The symbol for the parking brake goes out when the parking brake is released.

### Warning symbol in center of the instrument panel

This symbol shines as a red or yellow light depending on the severity of the discovered fault.

**Red symbol** - Stop the vehicle as soon as possible in a suitable location and read the message shown in the text window. The symbol and accompanying text will remain on until the fault has been corrected.

**Yellow symbol** - Follow the instructions shown in the text window. The text can be erased by pressing the READ button (see page 50), or will disappear automatically after two minutes.

**NOTE:** When the message "TIME FOR REGULAR SERVICE" is displayed, the text can be erased and the yellow symbol light can be turned off by pressing the READ button. The text will disappear and the symbol light will go out automatically after two minutes.

### Seat belt reminder

This symbol lights up to indicate that the driver has not fastened his/her seat belt.

### Supplemental Restraint System SRS

If this light comes on while the vehicle is being driven, or remains on for longer than approximately 10 seconds after the vehicle has been started, the SRS system's diagnostic functions have detected a fault in a seat belt lock or tensioner, a front airbag, side impact airbag, and/or an inflatable curtain. Have the system(s) inspected by a trained and qualified Volvo service technician as soon as possible.

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## Indicator and warning symbols

**BRAKE** Brake failure warning light If the light comes on while driving or braking, stop immediately, open the hood and check the brake fluid level in the reservoir. See page 185 for reservoir position and page 189 for instructions.

Canadian models are equipped with this warning light

**If the BRAKE and ABS warning lights come on at the same time, this could indicate a fault in the brake system.**
- Stop the vehicle in a suitable place and switch off the engine.
- Restart the engine.
- If both warning lights go off, no further action is required.
- If both lights are still on after the engine has been restarted, switch off the engine again and check the brake fluid level (see page 185 for the location of the brake fluid reservoir).
- If the brake fluid level is above the MIN mark, drive carefully to an authorized Volvo retailer and have the brake system inspected.

**WARNING!**

If the fluid level is below the MIN mark in the reservoir or if a "Brake failure - Service urgent" message is displayed in the text window: DO NOT DRIVE. Have the vehicle towed to an authorized Volvo retailer and have the brake system inspected.

**PARK BRAKE** Parking brake applied This light will be on when the parking brake (hand brake) is applied. applied. The parking brake pedal is located on the left side of the driver's footwell. See also page 66 for additional information.

Canadian models are equipped with this symbol.

**Oil pressure warning light If the light comes on while driving, stop the vehicle and then stop the engine immediately and check the engine oil level.** See page 187. If the light stays on after restart, have the vehicle towed to the nearest authorized Volvo retailer. After hard driving, the light may come on occasionally when the engine is idling. This is normal, provided it goes off when the engine speed is increased.

### Generator warning light

If the light comes on while the engine is running, have the charging system checked.

### Rear fog light

This light indicates that the fog light is on.

### CHECK ENGINE Malfunction indicator light

On-Board Diagnostics II (OBDII): As you drive, a computer called "OBDII" monitors your vehicle's engine, transmission, electrical and emission systems. The CHECK ENGINE light will light up if the computer senses a condition that potentially may need correcting. When this happens, please have your vehicle checked by a Volvo retailer as soon as possible.
A CHECK ENGINE light may have many causes. Sometimes, you may not notice a change in your vehicle's behavior. Even so, an uncorrected condition could hurt fuel economy, emission cleanliness, and driveability. Extended driving without correcting the cause could even damage other components in your vehicle.

Canadian models are equipped with this warning light.

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## Indicator and warning symbols

### Anti-lock brake system ABS

If the warning light comes on, there is a malfunction of the ABS system (the standard braking system will still function). The vehicle should be driven to a Volvo retailer for inspection. See page 128 for additional information.

### DSTC system

The Dynamic Stability and Traction Control system (DSTC) is explained in greater detail on page 130.

### Tire pressure monitoring light

See page 154 for more information on this function.

### Turn signal indicator - trailer (certain models)

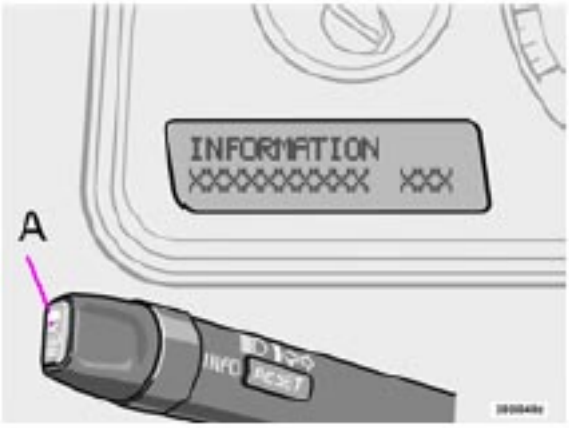
If you are towing a trailer, this light will flash simultaneously with the turn signals on the trailer. If the light does not flash when signaling, neither the trailer's turn signals nor the vehicle's turn signals are functioning.

pg. 50 Instruments and controls

## Indicator and warning symbols

**Messages in the text window**
When a warning light in the instrument panel comes on, a message is also displayed in the text window. After you have read the message, you can erase it by pressing button A (see illustration).

**NOTE:** Certain messages cannot be erased until the condition has been corrected. If a warning message is displayed when e.g. you are using the trip computer, this message must be erased before you can access the function of your choice. Press button A to erase the warning message.
You can scroll through the stored messages by pressing button A (see illustration). The text window can be cleared (the message will be returned to memory) by pressing button A again.

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## Indicator and warning symbols

| | |
|---|---|
| STOP SAFELY | Stop and switch off the engine - to help prevent serious risk of damage. |
| STOP ENGINE | Stop and switch off the engine - to help prevent serious risk of damage. |
| SERVICE URGENT | Take your vehicle to a trained and qualified Volvo service technician for inspection immediately. |
| SEE MANUAL | Refer to your owner's manual. For additional information, please contact your Volvo retailer. |

| | |
|---|---|
| SERVICE REQUIRED | Take your vehicle to an authorized Volvo retailer for inspection at your convenience (but preferably before the next scheduled maintenance service). |
| FIX NEXT SERVICE | ave the system affected inspected at the next scheduled maintenance service. |
| TIME FOR REGULAR SERVICE | This message will be displayed at 7,500 mile (12,000 km) intervals, after 750 hours of driving or after 12 months, whichever occurs first, to remind the driver that the service interval has been exceeded. The message will be displayed for 2 minutes each time the vehicle is started until reset by the servicing retailer. |
| OIL LEVEL LOW - FILL OIL[1] | Check the oil level and top up if necessary. See page 187. |
| OIL LEVEL LOW - STOP SAFELY[2] | Stop as soon as possible and switch off the engine, check the oil level and top up if necessary. See page 187. |
| OIL LEVEL LOW - STOP ENGINE[2] | Stop as soon as possible and switch off the engine, check the oil level and top up if necessary. See page 187. |
| OIL LEVEL LOW - SEE MANUAL[2] | Stop as soon as possible and switch off the engine, check the oil level and top up if necessary. See page 187. |
| DSTC SPIN CONTROL OFF | The stability system's spin control function has been turned off. See page 130 for details. |

1. Yellow warning symbol, see page 47.
2. Red warning symbol, see page 47.

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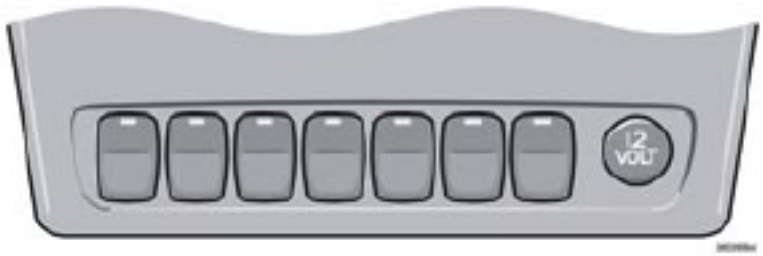
## Switches in the center console



**Active Bi-Xenon headlights (ABL) - option**

The beams of ABL headlights adjust laterally to help light up a curve according to movements of the steering wheel when the vehicle is turning. This function is activated automatically when the engine is started and can be deactivated/reactivated by pressing the button. The indicator light in the button is on when the function is activated. See also page 55.

**Rear seat air conditioning (option)**

This button controls the optional rear seat air conditioning system on seven-seat models.

**Folding sideview mirrors (option)**

Press the button and release it to fold the sideview mirrors in or out. On certain models, when the button is pressed, there may be a long pause before the mirrors move. Pressing the button again during this pause may erase your first button press. If this happens, wait ten seconds and press the button one more time.
The mirrors cannot be adjusted during the first ten seconds after they have been folded out.

**NOTE:** If the sideview mirrors have been inadvertently pushed out of position (in a car wash, parking lot, etc.) manually return them to normal position. If mirror adjustment does not seem to operate after manual folding, reset the folding mirrors as follows:
- Turn the ignition key to position II.
- Manually fold the mirror(s) to the normal position.
- Press the button to fold both mirrors in.
- Press the button again to fold the mirrors out to their normal position.

**Park Assist (option/ accessory as available)**

This system provides an audible warning when the vehicle is being parked or if it is driven close to a person or object. See page 131 for more information.

**NOTE:** The system activates automatically when the engine is started, and can be deactivated by pressing this button (e.g. when towing a trailer) or reactivated if necessary.

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## Switches in the center console

**Temporarily disconnecting the alarm sensors (option)**
See page 112 for more details.

**Auxiliary lights**
This button is used to switch on auxiliary lights (if installed). A light in the button will light up to indicate that the auxiliary lights are illuminated.

**12 volt socket**
This 12 volt socket can be used to plug in certain accessories such as cellular telephones, etc. The ignition key must be in position I (or higher) for the auxiliary socket to function.

**NOTE:** The auxiliary sockets can also be used for cigarette lighters, which are available as accessories at your Volvo retailer.

**Power child locks (option)**
See page 110 for more information on this function.

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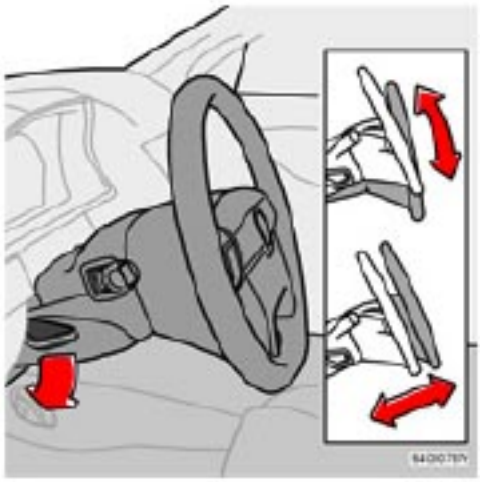
## Steering wheel adjustment



Both the height and the reach of the steering wheel can be adjusted to a comfortable position for the driver. Pull down the lever on the left of the steering column. Adjust the steering wheel to a suitable position and press the lever back into place to lock the steering wheel in the new position. Check that the steering wheel is locked in the new position.

**WARNING!**

Never adjust the steering wheel while driving.

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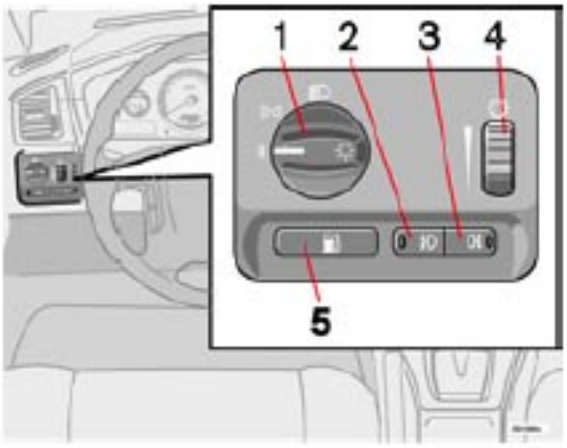
## Lighting panel




1. Headlight/parking light switch
2. Front fog lights
3. Rear fog light
4. Instrument panel lighting
5. Fuel filler door unlock button

**Parking lights**

The front and rear parking lights can be turned on even when the ignition is switched off.

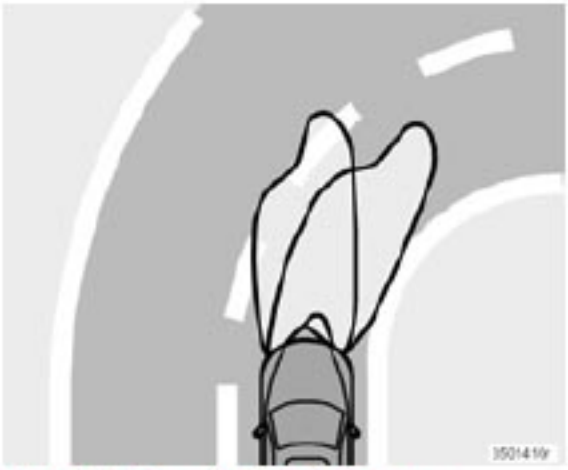
- Turn switch 1 to position . The license plate lights also illuminate when the parking lights are switched on.

**Headlights**

- Turn the ignition key to position II.
- The low beam headlights (daytime running lights) illuminate automatically, except when the light switch (1) is in position [1].

See page 58 for information on switching between high and low beams.

**NOTE:** Active Bi-Xenon headlights (option): Turn the headlight switch to position 0 to activate a daylight sensor, which automatically switches the low beams on or off, depending on ambient light conditions. When driving in daylight, the headlights will switch off and the daytime running lights will come on. In darkness, the daytime running lights will switch off and the Active Bi-Xenon headlights will switch on.



*Active Bi-Xenon headlight beams*

**Active Bi-Xenon headlights (ABL) - option**
When the ABL function is activated, the headlight beams adjust laterally to help light up a curve according to movements of the steering wheel (see the right-pointing beam in the illustration above). This function is activated automatically when the engine is started and can be deactivated/ reactivated by pressing the ABL button (see page 52).

1. On Canadian models, the daytime running lights will remain on with the light switch in this position.

pg. 56 Instruments and controls

## Lighting panel

**Fog lights**
**Front fog lights (option)**
The front fog lights can be used in combination with either the headlights or the parking lights.
- Turn the ignition key to position II.
- Press button 2 to turn on the front fog lights.
An indicator light in the button illuminates when the front fog lights are on.

**Rear fog light**
The single rear fog light is located in the driver's side of the vehicle.
The rear fog light will only function in combination with the high/low beam headlights or the optional front fog lights.
- Turn the ignition key to position II.
- Press button 3 to turn on the rear fog light.
An indicator light in the button illuminates when the rear fog light is on.

**NOTE:** The rear fog light is considerably brighter than the normal tail lights and should be used only

when conditions such as fog, rain, snow, smoke or dust reduce visibility for other vehicles to less than 500 ft. (150 meters).

**Instrument panel lighting**
The instrument panel lighting illuminates when the ignition key is in position II and the light switch (1) is in either position 0 or .
- Move the thumb wheel (4) up to increase brightness or down to decrease brightness.

**Unlocking the fuel filler door**
Press button 5 when the vehicle is at a standstill to unlock the fuel filler door. Please note that the fuel filler door will remain unlocked until the vehicle begins to move forward. An audible click will be heard when the fuel filler door relocks.

**NOTE:** If the fuel filler door does not unlock after the button has been pressed, drive the vehicle at a speed of at least 5 mph (8 km/h), stop the vehicle, and press the button again.
See page 57 for information on unlocking the fuel filler door manually.

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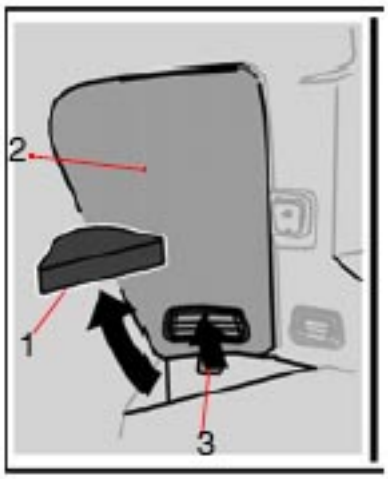
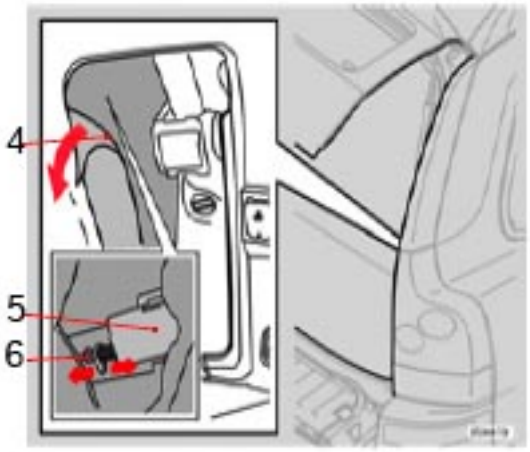
## Lighting panel



*Panel on passenger's side of cargo area*

**Manually unlocking the fuel filler door**
- Open the upper and lower sections of the tailgate, and fold up the rear section of the cargo area floor.
- If the vehicle is equipped with the optional grocery bag holder, detach the holder's bands.
- Remove the corner panel (1) from the floor of the cargo area.
- Open the cover (2) in the side panel by pulling the tab (3) upward/outward.
- Pull down the insulating material (4) to access the fuel filler door motor (5).




- Move the catch (6) rearward to unlock the fuel filler door lock, or move it forward to lock the filler door.

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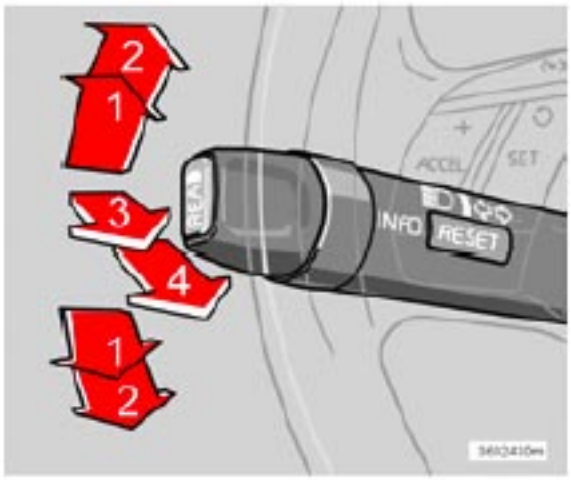
## Left-side steering wheel lever




**Lever positions**
1. Turn signals, lane change position
2. Turn signals, position for normal turns
3. High beam flash
4. Toggle between high and low beams, Home Safe lighting

**Turn signals**
**When turning**
Move the lever as far up or down as possible (to position 2) to start the turn signals. The turn signals will be cancelled automatically by the movement of the steering wheel, or the lever can be returned to its

initial position by hand.

**When changing lanes**
The driver can automatically flash the turn signals 3 times by:

- Moving the turn signal lever up or down to position 1 and releasing it.
- Moving the lever up or down to position 2 and immediately back to its original position.

**NOTE:**
- This automatic flashing sequence can be interrupted by immediately moving the lever in the opposite direction.
- If the turn signal indicator flashes faster than normal, check for a burned-out turn signal bulb.

**High/low beam headlights**
**Continuous high beams**
- Turn the ignition key to position II.
- With the light switch (1) in position , (see page 55) pull the turn signal lever toward the steering wheel (position 4) to toggle between high and low beams (this also applies on models equipped with the optional Active Bi-Xenon headlights).

**High beam flash**
- Turn the ignition key to position II.
- Pull the turn signal lever to position 3. The high beams will remain on until the lever is released.

**Home safe lighting**
When you leave your vehicle at night, you can make use of the home safe lighting function to illuminate the area in front of the vehicle.
- Remove the key from the ignition switch.
- Pull the direction indicator lever as far as possible towards the steering wheel (to position 4) and release it.
- Exit the vehicle and lock the doors. The headlights and parking lights will illuminate and remain on for 30[1], 60 or 90 seconds. The time interval can be changed by an authorized Volvo retailer.

1. Factory setting

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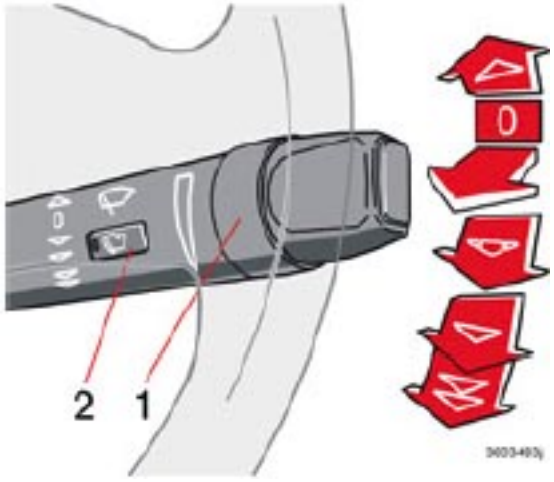
## Right-side steering wheel lever




**Windshield wipers**

**0 Windshield wipers off**

If the lever is in the 0 position and you move it upwards, the wipers will sweep one stroke at a time for as long as you hold the lever up.

**"Single sweep" position**

Move the lever slightly upward from the 0 position for one sweep of the wipers. The lever returns automatically to 0 when released.

**Intermittent wiper function**

With the lever in this position, you can set the wiper interval by twisting the control ring 1 upward to increase wiper speed or downward to decrease the speed.

**Windshield washer/headlight washer (certain models)**

When the lever is pulled to wash the windshield, high pressure jets mounted in the bumper will spray the headlights.

**CAUTION!**

Use ample washer fluid when washing the windshield. The windshield should be thoroughly wet when the wipers are in operation.

- To conserve washer fluid in driving conditions where the windshield washers are used frequently, the headlights will only be washed once for every five times the windshield is washed within a 10-minute

period.

- A short pull on the lever will wash the windshield only.
- When approximately 1 US quart (1 liter) remains in the washer fluid reservoir, the headlights will not be washed when the lever is pulled to conserve washer fluid for the windshield.

**Rain sensor (option)**

The rain sensor automatically regulates wiper speed according to the amount of water on the windshield. The **sensitivity** of the sensor can be adjusted by twisting ring 1 up (the wipers will sweep the windshield more frequently) or down (the wipers will sweep the windshield less frequently).

**Activating the rain sensor:**

- Turn the ignition key to at least position I and put the windshield wiper lever in position 0.
- Press button 2.

A light in the button will light up to indicate that the rain sensor is active.

**Deactivating the rain sensor:**

- Press button 2.

or

- Move the windshield wiper lever down to another position.

Moving the lever up will not deactivate the rain sensor. Doing so will cause the wipers to sweep the windshield until the lever is released, at which time the wipers return to rain sensor mode.

pg. 60 Instruments and controls

## Right-side steering wheel lever

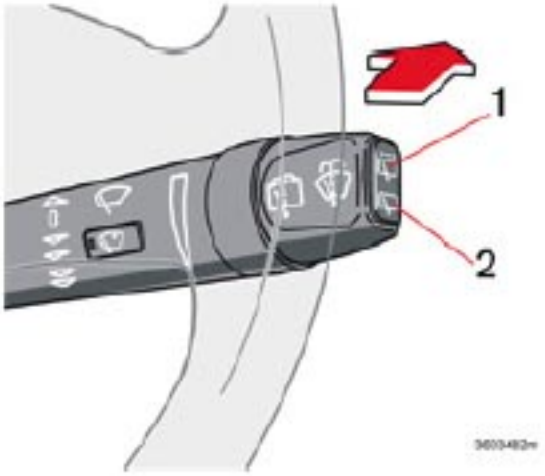
The rain sensor is also deactivated when the key is removed from the ignition.

**CAUTION!**

The rain sensor should be deactivated when washing the vehicle in an automatic car wash, etc. If the rain sensor function is left on, the wipers will start inadvertently in the car wash and could be damaged.

**Continuous wiper function.**

**Wipers operate at "high" speed.**




**Tailgate wiper/washer**
1. Intermittent wiping
2. Normal wiping
Move the lever forward to start the tailgate washer.

**Tailgate wiper and reverse gear**
If the front wipers are on and the transmission is put into reverse gear, the tailgate wiper will go into intermittent wiping function[1].
If the tailgate wiper is already in normal wiping function, the normal wiping function will continue.

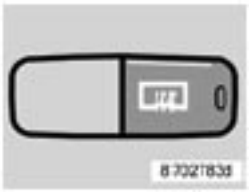
1. Consult your Volvo retailer if you would like to have this function deactivated.

pg. 61 Instruments and controls

## Hazard warning flashers, rear window/sideview mirror defroster

**Hazard warning flashers**
The four-way flasher should be used to indicate that the vehicle has become a traffic hazard. To activate the flashers, press the triangular button in the center dash. Press the button again to turn off the flashers.

**NOTE:** Regulations regarding the use of the hazard warning flasher may vary, depending on where you live.



**Rear window and sideview mirror defroster**
Press the switch to start heating the rear window and sideview mirrors to remove ice or condensation. A light in the switch will light up.
A timer automatically switches off the heating after approximately 12 minutes. The LED will go out correspondingly.

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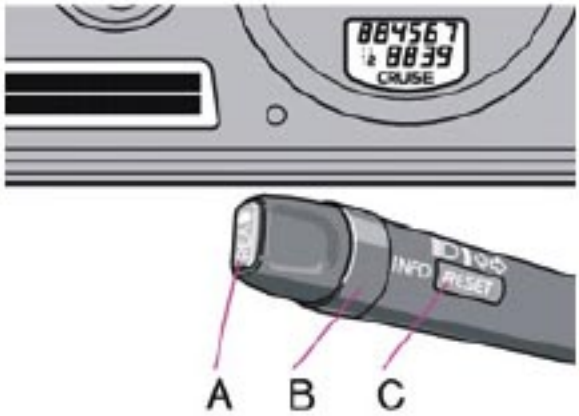
## Trip computer (option)




**Trip computer**

The trip computer stores information gathered from several systems in your vehicle and has four menus that can be displayed in the text window.

- Driving distance on current fuel reserve
- Average fuel consumption
- Current fuel consumption
- Average speed
- Current speed in mph (Canadian models only)
- DSTC (see page 130 for detailed information)

**NOTE:** Warning messages from the vehicle's monitoring systems will override the trip computer function. If a warning message is displayed in the text window while you are using the trip computer, you must acknowledge the message by pressing button A. Press button A again to return to the trip computer function.

**Trip computer controls and functions**

The four[1] trip computer functions can be accessed by twisting control B one step at a time in either direction. Twisting a fifth[2] time returns you to the original function. The trip computer can be reset (current data will be erased from system memory) by pressing RESET (button C).

**1. Driving distance on current fuel reserve**

This function shows the approximate distance that can be driven on the fuel remaining in the tank. This calculation is based on average fuel consumption during the last 20 miles (30 km) of driving and the amount of fuel remaining in the tank when the reading was taken.

When the driving distance on current fuel reserve is less than 12 miles (20 km), "----" will be displayed in the text window.

**2. Average fuel consumption**

This value indicates fuel consumption since the last time the trip computer was reset (by pressing RESET, button C). When the engine is switched off, information on fuel consumption is stored and remains in system memory until the RESET (button C) is pressed again.

**3. Current fuel consumption**
This value indicates the current fuel consumption, based on readings taken once per second. When the vehicle is not moving, "----" will be displayed.

**4. Average speed**
This value indicates average speed since the last time the trip computer was reset (by pressing RESET, button C). When the engine is switched off, information on average speed is stored and remains in system memory until the RESET (button C) is pressed again.

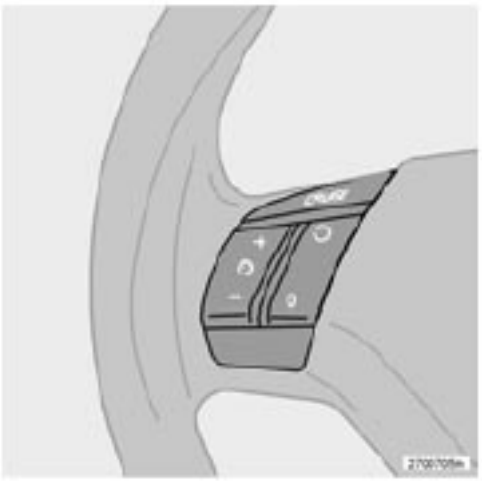
**5. Current speed in miles per hour (Canadian models only)**
This function provides the driver with an instantaneous conversion of the vehicle's current speed from km/h to mph.

**NOTE:** Trip computer readings may vary slightly depending on the circumference of the tires on the vehicle and driving style.

1. Five functions on Canadian models.
2. A sixth time on Canadian models.

pg. 63 Instruments and controls

## Cruise control

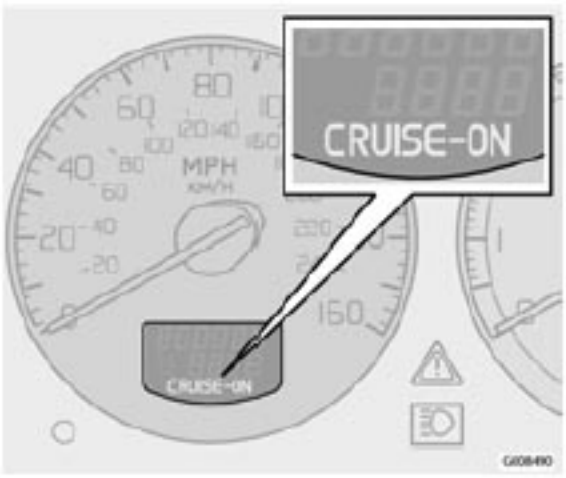


**Cruise control**
The cruise control panel is located on the left side of the steering wheel hub.

**Engaging cruise control**
Press the CRUISE button. CRUISE will be displayed in the information window in the instrument panel.

**NOTE:** This does not set the vehicle's speed.

**Setting speed**
Press + or - to set the current speed. CRUISE-ON will be displayed in the information window in the instrument panel.




**Increasing or decreasing speed**
Use + or - in the following ways to increase or decrease the vehicle's speed:
- Press and hold down + or - until the vehicle reaches the desired speed.
- Press + or - for approximately a half second and release the button to increase or decrease vehicle speed by approximately 1 mph (1.6 km/h).

**NOTE:** Cruise control will not function at speeds below approximately 20 mph (30 km/h).

**Braking**
- Cruise control is automatically disengaged when the brake pedal is depressed. The currently set speed is stored in memory.
- Pressing resume will return the vehicle to the previously set speed.

**Acceleration**
Momentary acceleration, such as when passing another vehicle, does not affect cruise control operation. The vehicle will automatically return to the previously set speed when you release the accelerator pedal.

**Disengaging cruise control**
To disengage cruise control, press the CRUISE button. CRUISE or CRUISE-ON will no longer be displayed in the information window in the instrument panel.

**NOTE:** Cruise control is automatically disengaged if:
- the engine is switched off

- the gear selector is placed in (N)eutral
- the wheels start to spin or lock
- if an increase in speed is maintained for more than one minute
- if the vehicle's speed falls below approximately 20 mph (30 km/h).

pg. 64 Instruments and controls

## Cruise control

**Temporarily disengaging cruise control**

- Press 0 to temporarily disengage cruise control. CRUISE will be displayed in the information window in the instrument panel.
- Press the brake pedal.

Press "resume" to return to the previously set speed.

**WARNING!**

Cruise control should not be used in heavy traffic or when driving on wet or slippery roads, or when driving on unpaved or uneven road surfaces. Cruise control may not maintain set speed on steep downgrades.

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## Auxiliary 12-volt sockets

**12 volt sockets**

These 12 volt sockets can be used to plug in certain accessories such as cellular telephones, etc.
The ignition key must be in at least position I for the sockets in the front seat and the optional socket at the rear of the center console to function.

**12-volt socket in the cargo compartment**

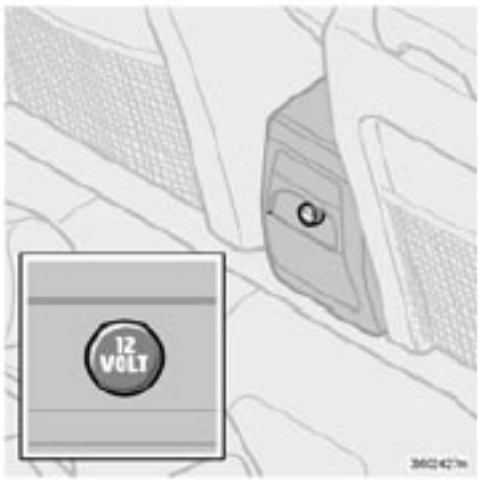
Fold down the lid to use the socket. This socket can be used even if the ignition is switched off.

**NOTE:**

- If the 12-volt sockets are used while the engine is not running, there is a risk that the vehicle's battery will be discharged.
- If the ignition is switched off and a device drawing more than 0.1A is connected to a socket, a battery

warning will be displayed in the text window.

- The covers should be kept on when the auxiliary sockets are not in use.
- Maximum current from the sockets is 15A.




*12-volt socket at the rear of the center console (option)*

**Ashtrays/cigarette lighter**

The auxiliary sockets can also be used for cigarette lighters.

Ashtrays and lighters are available as accessories. Please contact your Volvo retailer.

*12-volt socket in the cargo compartment*

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## Parking brake

**Parking brake**
To apply the parking brake, press the pedal (C). The brake is applied to the rear wheels.

**When applying the parking brake**
- Press firmly on the brake pedal.
- Press down pedal C as far as possible.
- Release the brake pedal and ensure that the vehicle is at a standstill.
- Put the gear selector in P (automatic transmission).

**WARNING!**

- Always apply the parking brake fully when the vehicle is parked.
- The indicator light will light up even if the parking brake has only been partially applied. Always press down the pedal as far as possible.
- When parking the vehicle, in addition to applying the parking brake, always put the gear selector in the Park position.

**Parking on a hill**
- If the vehicle is pointing uphill, turn the front wheels so that they point away from the curb.
- If the vehicle is pointing downhill, turn the front wheels so that they point toward the curb.

**Releasing the parking brake**
- Press firmly on the brake pedal.
- Pull out the parking brake release handle (A).

**NOTE:** There is also an audible signal that will sound if the vehicle is driven with the parking brake engaged.
- Release the parking brake pulling out the lower edge of the release handle (A).
- If you inadvertently pull the plastic cover (B), it can be pressed back into place.

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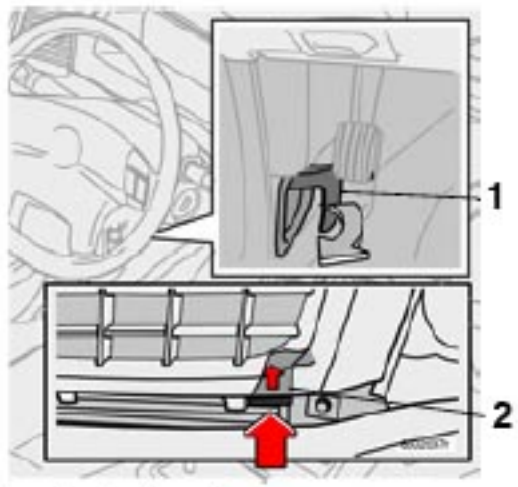
## Opening the hood and tailgate



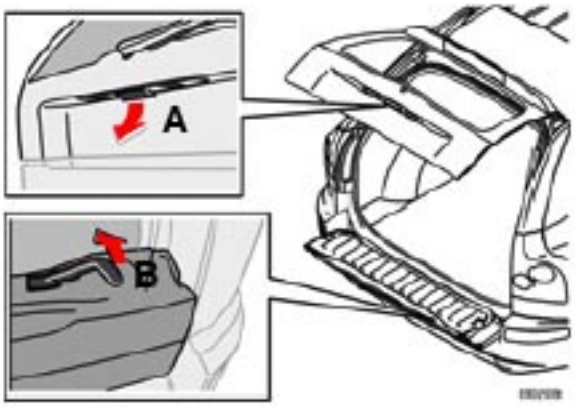

*Opening the hood*

**Opening/closing the hood**
- Pull the lever (1) located under the left side of the dashboard to release the hood lock.
- Lift the hood slightly.
- Press up the release control (2) located under the front edge of the hood and lift.

To close the hood, place your hand on it and press down until the hood locks in the closed position.

**WARNING!**

- Do not grasp the ribs in the grille when closing the hood. If your fingers protrude through the grille, they could be injured on components in the engine compartment as the grille closes. We recommend pressing down on the hood to close it.
- Check that the hood locks properly when closed!




**Opening the tailgate**
To open the upper section of the tailgate, pull the handle (A) downward.
To fold down the lower section of the tailgate, pull handle (B) upward.

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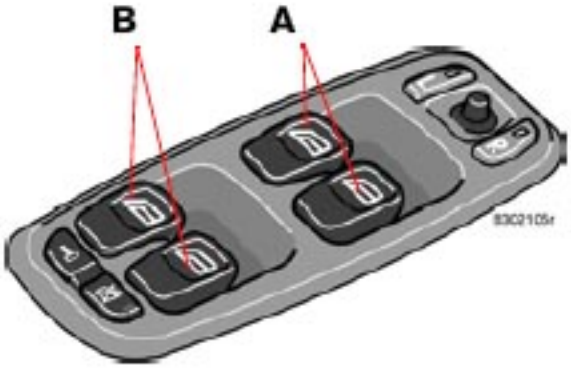
## Power windows

The power windows are controlled by buttons in the arm rests. The ignition switch must be ON[1] (ignition key in position I, II or the engine running) for the electrically operated windows to function.
To lower: Press down the front edge of the button to the first detent ("stop").
To raise: Lightly pull up the front edge of the button to the first detent ("stop").

**Auto up/down function (front doors only):**
Either front door window can be opened or closed automatically.

**Auto down:** Press the front part of the button as far down as possible and release it immediately. To stop the window at any time, pull the button up.

**Auto up:** Pull the front part of the button up as far as possible and release it immediately. To stop the window at any time, press the button down.




**NOTE:** If a window is obstructed during auto-up, it will automatically reverse direction and return to its starting position. If a window is repeatedly obstructed during auto-up operation, an overload protection circuit breaker will temporarily halt window function. The window will return to normal function after a brief cool-down period.

**WARNING!**

Always remove the ignition key when the vehicle is unattended.
Make sure that the windows are completely unobstructed before they are operated.
Never leave children unattended in the vehicle.

1. The power windows will also function after the ignition has been switched off as long as neither of the front doors has been opened.

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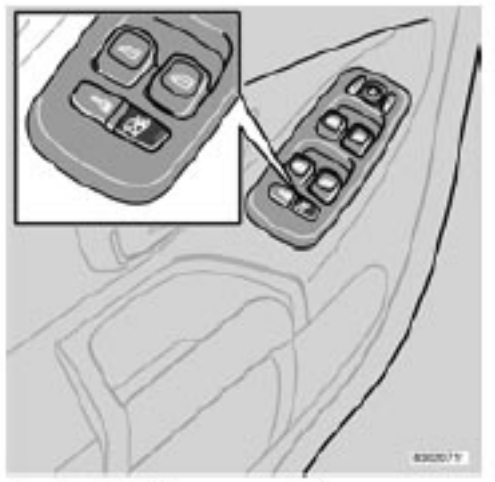
## Power windows



*Lockout switch for rear windows*

**Lockout switch for rear windows**
The power rear door windows can be disabled by a switch located on the driver's door (see illustration).

**If the light in the switch is OFF:** The rear door windows can be raised or lowered with the buttons on the rear door armrests or with the buttons on the driver's door armrest.

**If the light in the switch is ON:** The rear door windows can only be raised or lowered with the buttons on the driver's door armrest.

**Power window on the front passenger's side**
The control for the power window in the front passenger's seat operates that window only.

**Power windows in the rear doors**
The rear door windows can be operated with the control on each door and the switch on the driver's door. If the light in the switch for blocking power windows in the rear doors (located in the driver's door control panel) is on, the rear door windows can only be operated from the driver's door.

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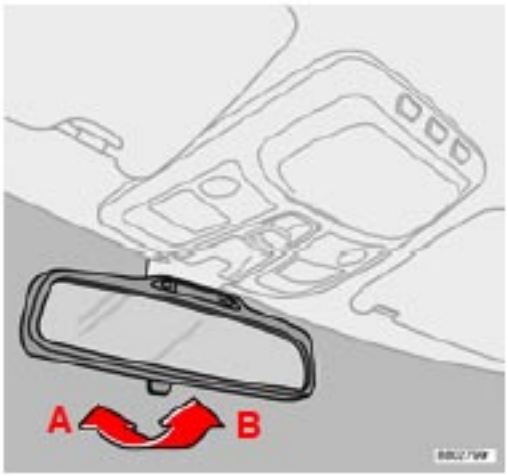
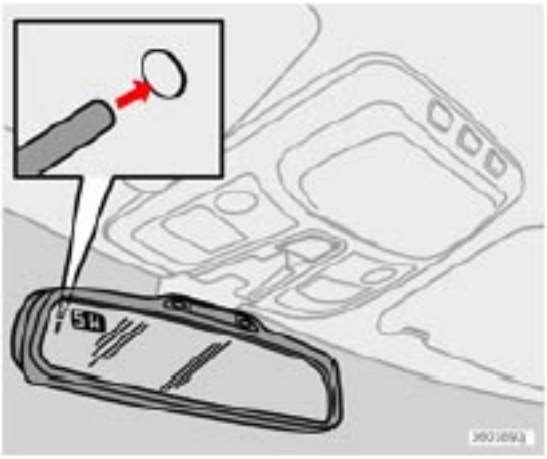
## Rearview mirror/power folding sideview mirrors




**Rearview mirror**
To reduce glare from the headlights of following vehicles, use the control to switch between the normal and night-driving positions.
A. Normal position
B. Night position, reduces glare from following headlights

**Autodim function (option)**
The autodim function reacts to headlights from following traffic and automatically reduces glare.

**NOTE:** This function is automatically switched off when the gear selector is placed in the Reverse position.



**Rearview mirror with compass (option)**
The upper left-hand corner of the rearview mirror has an integrated display that shows the compass direction toward which the car is pointing. Eight different directions can be displayed: N, NE, E, SE, S, SW, W and NW. The display shows your car's orientation with respect to true north.
If the compass is activated, it will be displayed automatically when the ignition is in postilion II or when the engine is running. The compass can be switched off or on by pressing the inset button on the rear side of the mirror (see the inset illustration). This can be done with straightened paperclip or similar object. The button is recessed approximately 1 in. (2.5 cm) in the mirror.

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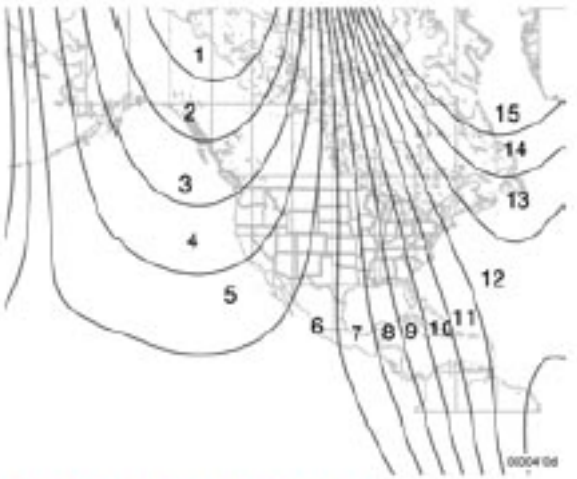
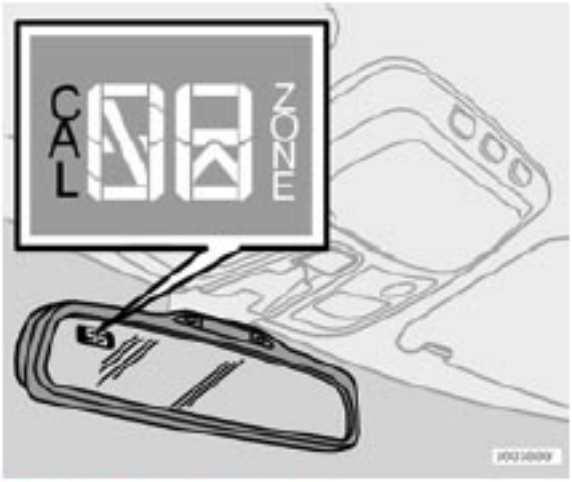
## Rearview mirror/power folding sideview mirrors




*Selecting a magnetic zone*

**Magnetic zones**

The earth is divided into 15 magnetic zones. The compass is initially set for the zone to which the car was delivered, and should always be adjusted if the car is driven to a new magnetic zone. To do so:
- Switch the ignition to position II.
- Press the button on the rear side of the mirror with straightened paperclip or similar object for approximately 3 seconds until ZONE is displayed. The number of the current magnetic zone will also be displayed.
- Press the button repeatedly until the number for the desired zone (1-15) is displayed.




*Calibrating the compass*

After several seconds, the compass heading will again be displayed, and the change of magnetic zones is complete.

**Calibrating the compass**
- Stop the car in a large, open area, away from traffic.
- Turn off as many electrical devices in the car as possible to avoid interference with the compass (e.g. audio system, etc).
- Using a pen or similar object, hold the button (1) depressed for at least 6 seconds. "CAL" will be displayed.
- Drive slowly in a circle at a maximum speed of 5 m.p.h. (8 km/h) until CAL is no longer displayed.

**NOTE:** This step can also be done by driving normally until CAL is no longer displayed. Calibration is complete.

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## Rearview mirror/power folding sideview mirrors

**Power sideview mirrors**
The mirror control switches are located on the driver's door armrest.

**Driver's side:** Press the L button (a light in the switch will light up) to activate the adjustment control and then use this control to adjust the driver's door mirror.

**Passenger's door:** Press the R button (a light in the switch will light up) and then use the adjustment control to adjust the passenger's door mirror.
After you have adjusted the mirror(s), press the L or R switch again (the light will go out) to deactivate the adjustment control.

**WARNING!**

The mirrors should always be adjusted prior to driving. Objects seen in the passenger's side wide-angle sideview mirror are closer than they appear to be.

**Mirror memory function (with the central locking system)-option**
If you lock the vehicle and later unlock it with the **same** remote control and open the driver's door, the sideview mirrors (and the driver's seat) will automatically move to the position they were in when you left the vehicle. This feature will work in the same way with all of the remote control transmitters (up to 3) that you use with your vehicle. This feature will not function if you lock your vehicle with the key.

**Water repellent glass**

The side door windows can be treated with a water repellent coating. The symbol to the left indicates

these windows have this coating. The optional laminated side windows always have this coating. The coating improves vision by causing the water to run off quickly.
See page 175 for information on cleaning this type of glass.

**CAUTION!**

- Use the heating function to remove ice, snow, or mist from the mirrors.
- Use only suitable plastic scrapers to remove ice or snow from the windows. Using a metal ice scraper could damage the water repellent coating.

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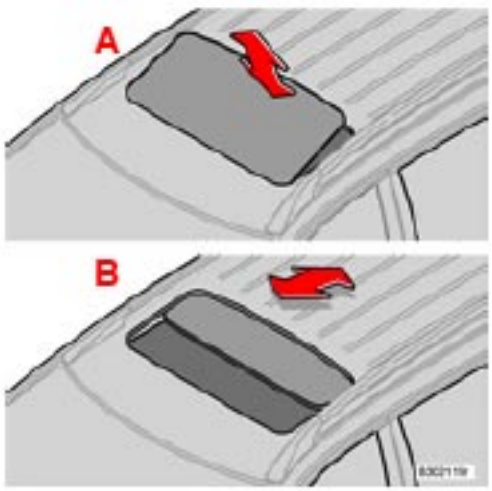
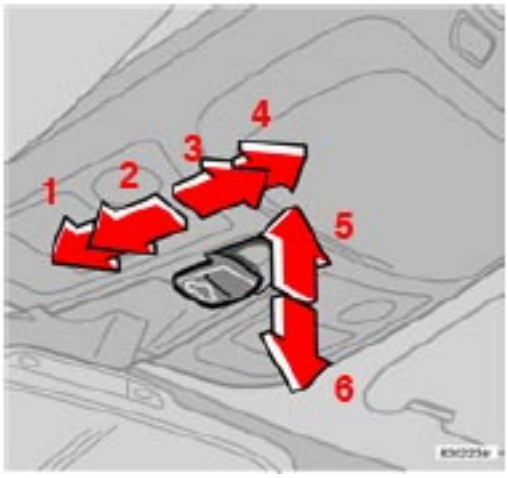
## Power moonroof (option)




**Power moonroof**
To operate the moonroof, turn the ignition key to position I or II, or start the engine. The moonroof can be operated in two ways:
A. Tilt position
B. Sliding moonroof

**A. Tilt position**
**Open:** With the moonroof closed, push up the rear edge of the switch (position 5 in the illustration below).

**Close:** Pull down and hold the rear edge of the switch (position 6 in the illustration below) until the moonroof has closed completely.




**B. Sliding moonroof**

**Manual open:** Pull the switch rearward to position 3 and hold it until the moonroof has opened to the position of your choice.

**Auto open:** Pull the switch as far back as possible (position 4) and release it to automatically slide open the moonroof to the "comfort"[1] position. Pull the switch rearward again to open the moonroof completely.

**Manual close:** Push the switch to position 2 and hold it until the moonroof has closed completely or to the position of your choice.

**Auto close:** Push the switch forward as far as possible (position 1) and release it to automatically close the moonroof.

1. A position where the moonroof is not quite fully open, which helps alleviate "rumbling" wind noise.

**WARNING!**

- Remove ice and snow before opening the moonroof.
- Do not operate the moonroof if it is frozen closed.
- Never place heavy objects on the moonroof.

**WARNING!**

- Never open/close the moonroof it is obstructed in any way when in operation.
- Never allow a child to operate the moonroof.
- Never extend any object or body part through the open moonroof, even if the vehicle's ignition is completely switched off.
- Never leave a child alone in a vehicle.

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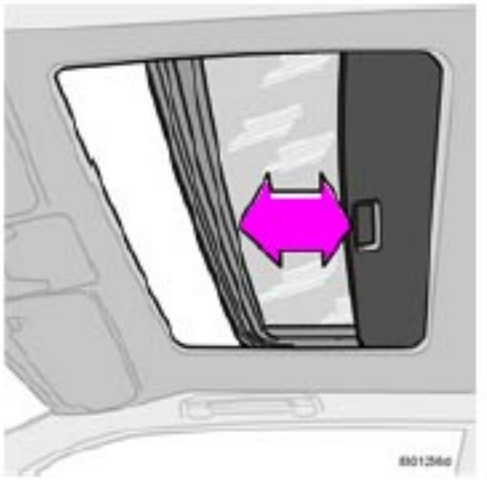
## Power moonroof (option)

If the moonroof is obstructed during auto-close operation, it will automatically reverse direction and return to its starting position. If the moonroof is repeatedly obstructed during auto-close operation, an overload circuit breaker will temporarily halt moonroof function. The moonroof will return to normal function after a brief cool-down period.



**Sun visor**
The optional moonroof also features a sliding sun visor. The visor slides open automatically when the moonroof is opened. The visor must be closed manually.

**WARNING!**

The moonroof must never be obstructed in any way when in operation.

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# 2007 VOLVO XC90

## Climate control

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| Electronic climate control (ECC) | 79 |


### pg. 76 Climate control

## Climate control systems - general information

**Condensation on the inside of the windows**
Keeping the insides of the windows clean will help reduce the amount of condensation that forms on the windows. Use a commercial window cleaning agent to clean the windows.

**Ice and snow**
Always keep the air intake grille at the base of the windshield free of snow.

**Cabin air filter**
Replace the cabin air filter with a new one at the recommended intervals. Please refer to your Warranty and Service Records Information booklet, or consult your Volvo retailer for these intervals. The filter should be replaced more often when driving under dirty and dusty conditions. The filter cannot be cleaned and therefore should always be replaced with a new one.

**Sensors**
The sunlight sensor on the dashboard and passenger compartment temperature sensor in the ECC control panel should not be covered in any way as this could cause incorrect information to be sent to the ECC system.

**Parking the vehicle in warm weather**
If your vehicle has been parked in the sun in warm weather, opening the windows and moonroof (option) for several minutes before driving will help release the warm air from the passenger compartment. When the engine is running, close the windows and moonroof and use the recirculation function for several minutes to enable the air conditioning to cool the compartment as quickly as possible.

**Windows and optional moonroof**
The ECC system will function best if the windows and optional moonroof are closed. If you drive with the moonroof open, we recommend that you manually adjust the temperature and blower control (the LED in the AUTO switch should be off).

**Acceleration**
The air conditioning is momentarily disengaged during full-throttle acceleration.

**Climate control maintenance**
Special tools and equipment are required to maintain and carry out repairs on the climate system. Work of this type should only be done by a trained and qualified Volvo service technician.

**Refrigerant**
Volvo cares about the environment. The air conditioning system in your vehicle contains a CFC-free refrigerant - R134a (HFC134a). This substance will not deplete the ozone layer. The approximate amount of R134a contained in the system is a follows:

***6-cylinder engine***
Single A/C system: 1.4 lbs (620 g)
Dual[1] A/C system: 2.2 lbs (1000 g)

***8-cylinder engine***
Single A/C system: 1.5 lbs (700 g)
Dual[1] A/C system: 2.3 lbs (1050 g)
The system also uses PAG oil.

**Climate system blower**
The climate system blower will be automatically switched off when the engine is not running (even if the ignition key is in position I or II) to avoid unnecessary battery drain. To activate the blower, turn the control to the desired setting.

**Passenger compartment blower**
Approximately 50 minutes after the ignition is turned off, the blower may come on automatically, and run for seven minutes, to remove condensation in the A/C evaporator.

1. Includes the optional rear A/C system

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## Climate control systems - general information

**Blower function to reduce battery drain**
The climate system's blower functions normally while the engine is running.
However, when the engine is switched off (even if the ignition is switched to positions I or II), the blower control

will be automatically switched off to avoid unnecessary battery drain.
The following points pertain if the ignition is on but the engine in not running:

- To restart the blower, turn the control knob to the setting of your choice.
- After approximately 2 minutes, the blower speed will be reduced to avoid battery drain.

You can reset the blower speed at any time. Please be aware that the system has been designed to reduce the blower's speed again after 2 minutes, until the engine is started.

If the battery becomes drained:
- LOW BATTERY, FAN IS REDUCED will be displayed in the text window in the instrument panel.
- The yellow warning light in the instrument panel (see page 47) will also light up.

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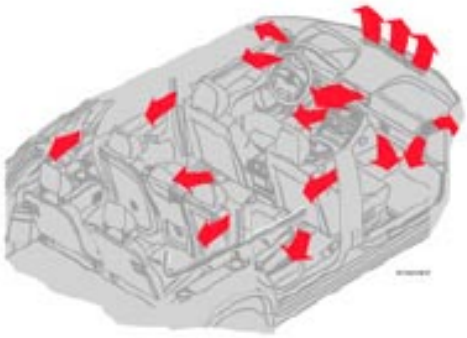
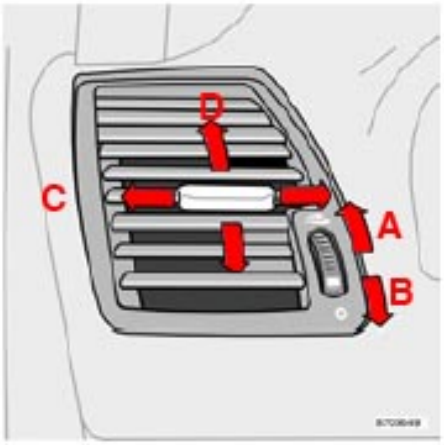
## Air distribution

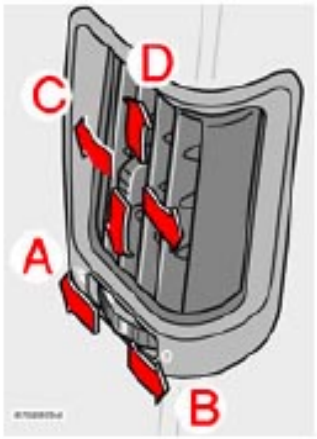


**Air distribution**
The incoming air is distributed through the ventilation points in the passenger compartment shown above.




**Air vents in the dash**
A. Open

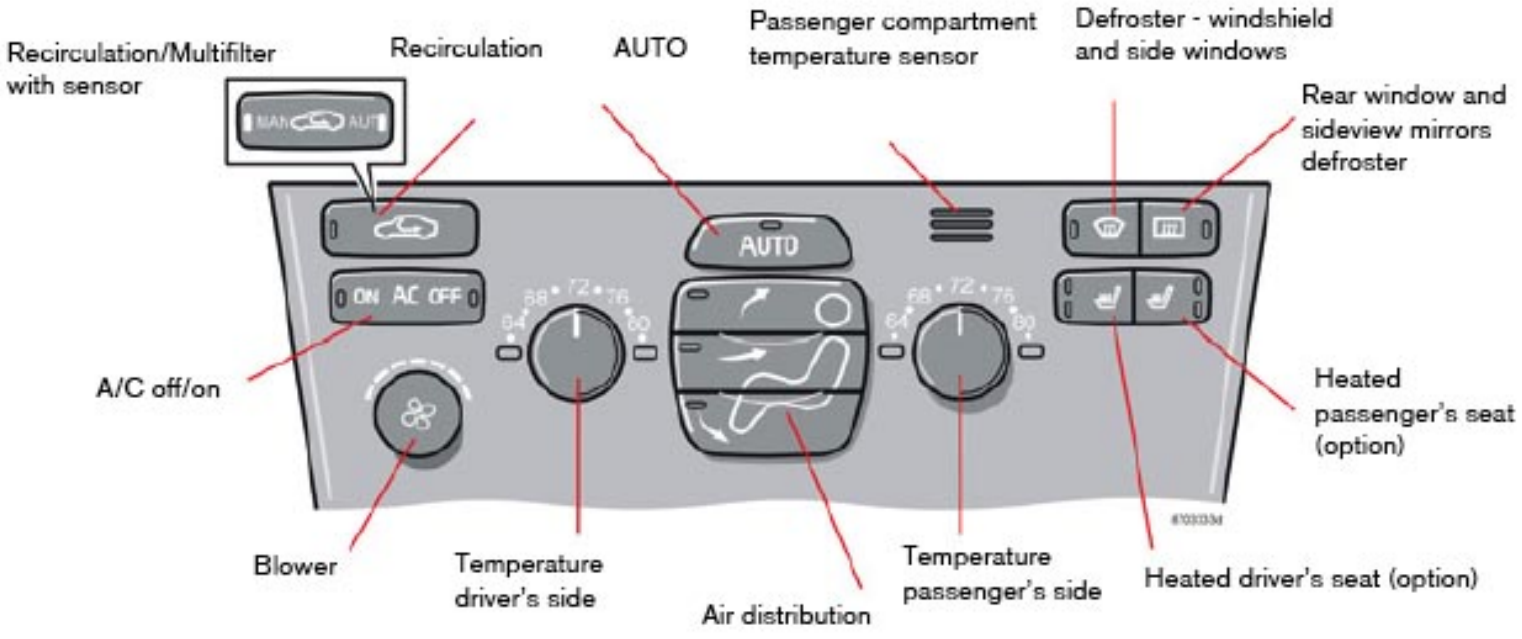
B. Closed
C. Horizontal air flow
D. Vertical air flow
Direct the outer air vents toward the side windows to defrost.

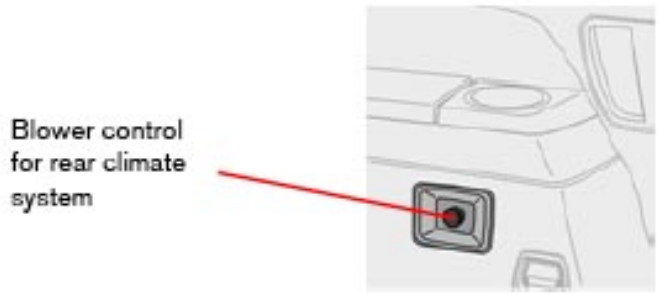



**Air vents in the door pillars**
A. Open
B. Closed
C. Horizontal air flow
D. Vertical air flow
Direct the outer air vents toward the side windows to defrost.

pg. 79 Climate control

## Electronic climate control (ECC)



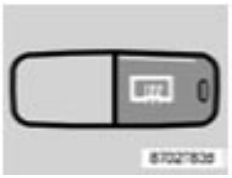



pg. 80 Climate control

## Electronic climate control (ECC)

**AUTO**

**This function automatically regulates the Electronic Climate Control system so that the selected temperatures are maintained. The blower, heating, air distribution (air flow), air conditioning, and optional air quality sensor are controlled.** If you prefer to manually set any of these functions, the remaining functions will still be controlled automatically. Pressing the AUTO button overrides any settings that were previously made manually.



**Rear window and sideview mirror defrosters**

This function defrosts/ de-ices the rear window and sideview mirrors.

The LED in the switch will light up to indicate that the heating function is engaged. See page 61 for additional information on this function.

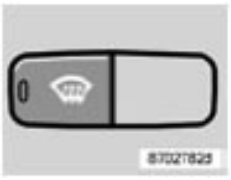
**Never use ice scrapers made of metal as they can easily scratch the mirror surface.**

**Temperature**

These controls are used to individually set the temperature for both sides of the passenger compartment.

Please note that the compartment will not be heated or cooled faster by setting the temperature higher or lower than necessary.

Set the control to the temperature you prefer.



**Defroster**

This function defrosts/ de-ices the windshield and front side windows. The LED in the switch will light up to indicate that the defrost function is engaged.

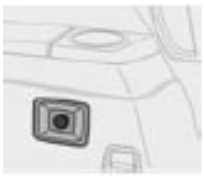
- Blower speed increases automatically and the air conditioning will switch on (if not already on and if the passenger compartment blower is not turned off) to dehumidify the air in the passenger compartment.
- Recirculation will not function while defrost is engaged.

The climate system will return to its previous settings when the defroster function is switched off.

**Blower control[1]**

Turn the control clockwise to increase or counterclockwise to decrease the blower speed. Pressing the AUTO switch will automatically regulate blower speed and override manual adjustment.

Turning the blower control counterclockwise until an orange LED comes on will turn both the blower and the air conditioning off.



**Blower control for rear climate system (option)**

Turn the control to increase or decrease blower speed.

1. See also page 76.

pg. 81 Climate control

## Electronic climate control (ECC)

**Air distribution**

Air flow to windows
Air through panel vents
Air through floor vents

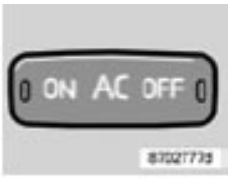
Press **AUTO** to automatically regulate air flow or press any combination of the controls shown in the illustration

to manually adjust air flow. An LED in the switch will light up if an air flow control has been pressed.

**Heated front seats (option)**

- Press the switch once for maximum seat heating. Both LEDs in the switch will be lit.
- Press the switch a second time for comfort heating. One LED in the switch will be lit.
- Press the switch a third time to turn the heating off completely. The LED will go off.

The seat heating for the passenger seat should be switched off when the seat is not occupied.




**A/C - ON/OFF**

Press the switch to turn the air conditioning on or off. The "ON" or "OFF" LED will light up to indicate if the system is switched on or off. Other functions will still be regulated automatically (if the **AUTO** switch is on).

- The air conditioning functions only at temperatures above 32 °F (0 °C).
- While the Defroster function is selected, the air conditioning is temporarily activated to dehumidify the air, even if you have manually switched the air conditioning off. This will only function if the blower is not switched off.

**Recirculation**

Press this switch to engage the recirculation function (air in the passenger compartment recirculates - no fresh air enters the compartment). The LED in the switch will light up to indicate that the function is engaged.

- Use this function if the outside air is contaminated with exhaust gases, smoke, etc or to heat/cool the vehicle quickly.
- Recirculation should not be used for more than 15 minutes. If your windows begin to fog or mist, make sure that the recirculation function is switched off.
- Selecting **Defroster** automatically switches recirculation off.
- Timer mode activation: (Vehicles equipped with the Interior Air Quality system have no timer mode) Press and hold the recirculation button for at least 3 seconds to activate a recirculation timer mode. The amber LED in the recirculation button will flash 5 times to show that the timer mode is being activated. In timer mode, each time the recirculation button is pressed, the climate control system will recirculate the air in the passenger compartment for 5-12 minutes, depending on the outside air temperature, and then revert back to fresh air.
- Timer mode deactivation: Press and hold the recirculation button for 3 seconds. The amber LED in the recirculation button will illuminate steadily for 5 seconds to show a return to "normal" mode.
- In normal mode, when the recirculation button is pressed, the climate control

pg. 82 Climate control

## Electronic climate control (ECC)

system will recirculate the air in the passenger compartment until the recirculation button is pressed again.
- Timer mode memory: If the vehicle is turned off while timer mode is active, timer mode will still be active when the vehicle is restarted.

**Interior air quality sensor (option)**

Some vehicles are equipped with a multi-filter and air quality sensor. The filter separates gases and particles, thereby reducing the amounts of odors and contaminants entering the vehicle. The air quality sensor detects increased levels of contaminants in the outside air. When the air quality sensor detects contaminated outside air, the air intake closes and the air inside the passenger compartment is recirculated, i.e. no outside air enters the vehicle. The filter also cleans recirculated passenger compartment air.

When the ECC system is in the AUTO mode, the green LED will be on .

**Operation**

Press

to operate the air quality sensor (normal setting).

or:

Select one of the following three functions by pressing 1, 2 or 3 times.

1. The AUT LED lights. The air quality sensor is now activated.
2. No LED lights. Recirculation is not activated unless needed to cool the passenger compartment in a warm climate.
3. The MAN LED lights. Recirculation is now activated.

**Keep in mind the following:**
- Make it a rule to have the air quality sensor activated at all times.
- Recirculation is limited in cold climates to avoid fogging.
- If window fogging occurs, you should deactivate the air quality sensor.
- If fogging occurs, use the defroster functions for the windshield, side windows and rear window. See page 80.
- The filter should be changed at the intervals recommended in the service schedule. However, if the vehicle is used in a severely contaminated environment, it may be necessary to change the filter more frequently.

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## Front seats

**Manually adjusted front seats**

1. Front-rear adjustment: lift the bar and move the seat to the position of your choice.
2. Raise/lower the front edge of the seat cushion (option): use the control to pump the front edge of the cushion up or down.

3. Raise/lower seat height: pump the seat up or down.
4. Lumbar support: turn the control for firmer or softer lumbar support.
5. Backrest tilt: turn the control to adjust the angle of the backrest.
6. Control panel for optional power seat (see page 86 for more information).

**WARNING!**

- Do not adjust the seat while driving. The seat should be adjusted so that the brake pedal can be depressed fully. In addition, position the seat as far rearward as comfort and control allow.
- Check that the seat is securely locked into position after adjusting.

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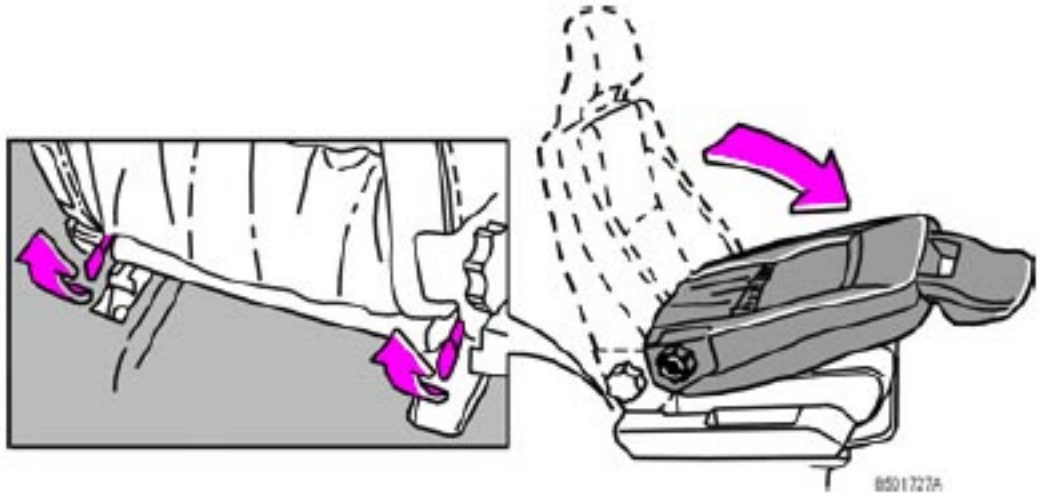
## Front seats



**Folding the backrests in the front seat**

The front passenger seat backrest can be folded to a horizontal position to make room for a long load. Fold the backrest as follows:

- Move the seat as far back as possible.
- Adjust the backrest to the upright position.
- Lift the catches on the rear of the backrest.
- Without releasing the catches, push the backrest forward.
- Move the seat as far forward as possible so that the head restraint slides under the glove compartment.

**WARNING!**

Cover sharp edges on the load to help prevent injury to occupants. Secure the load to help prevent shifting during sudden stops.

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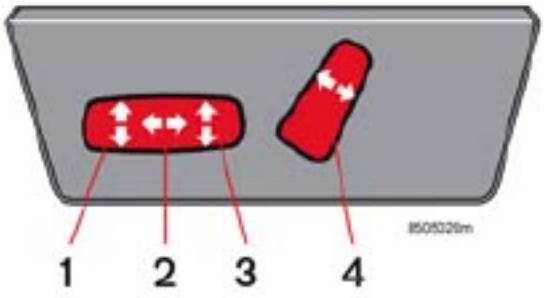
## Front seats

**Power seat - (option on certain models)**
**Operation**
**Driver's seat:** The seat can be adjusted if the ignition key is in position I, II or if the engine is running. It can also be adjusted as follows **with the ignition off**:

- Within several minutes after the driver's door has been unlocked from the outside, has been opened, and remains open.
- Within a short period if the driver's door has just been closed.
- Within a short period if the driver's door has not been opened after the ignition has been switched off.

**Passenger seat:** The seat can only be adjusted if the ignition key is in position I, II or if the engine is running.




*Power seat adjustment controls*

**Seat adjustment**
Adjust the power seat(s) with the two controls at the side of the seat as follows:
1. Front edge of seat (raise/lower)
2. Forward - rearward
3. Rear edge of seat (raise/lower)
4. Backrest tilt

**NOTE:** The power seats have an overload protector that activates if a seat is blocked by any object. If

this occurs, switch off the ignition (key in position 0) and wait for a short period before operating the seat again.

**Emergency stop**
If the seat accidentally begins to move, press any of the buttons to stop the seat.

**NOTE:** Please refer to the following page for information on programming the memory function in the driver's seat.

**Remote keyless entry system and the driver's seat**
The remote control transmitter also controls the position of the electrically operated driver's seat in the following way:
- Adjust the seat to your preferences.
- When you leave your vehicle, lock it using the remote control.
The position of the seat is now stored in the remote control.

**Automatic seat adjustment**
To move the seat to the position in which you left it:
- Unlock the driver's door with the same remote control (the one used to lock the doors)
- Open the driver's door within 2 minutes.
The driver's seat will automatically move to the position in which you left it.

**NOTE:**
- The seat will move to this position even if someone else has moved it to a different seating position and locked the vehicle with a different remote control.

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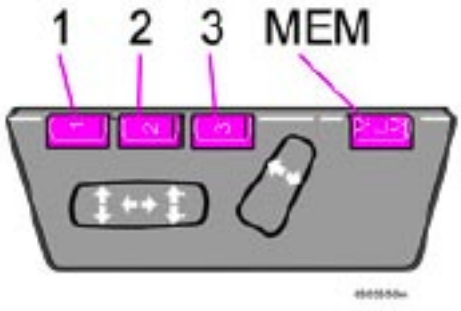
## Front seats

- This feature will work in the same way with all of the remote control transmitters (up to 3) that you use with your vehicle.
- This feature will not function if you lock your vehicle with the key.

**WARNING!**

- Because the driver's seat can be adjusted with the ignition off, children should never be left unattended in the vehicle.
- Movement of the seat can be STOPPED at any time by pressing any button on the power seat control panel.
- Do not adjust the seat while driving.
- The seat should be adjusted so that the brake pedal can be depressed fully. In addition, position the seat as far rearward as comfort and control allow.
- The seat rails on the floor must not be obstructed in any way when the seat is in motion.




**Programming the memory**
Three different seating and door mirror positions can be stored in the driver seat's memory.
The following example explains how button 1 can be programmed. Buttons 2 and 3 can be programmed in the same way.
To program (store) a seat position in button 1:
- Move the seat to the desired position using the seat adjustment controls (see the previous page).
- Press and hold down the MEM (memory) button.
- With the MEM button depressed, press button 1 briefly to store the seat's current position.

**To move the seat to the position that it was in when button 1 was programmed:**
Press and hold down button 1 until the seat stops moving.
As a safety precaution, the seat will stop automatically if the button is released before the seat has reached the preset position.

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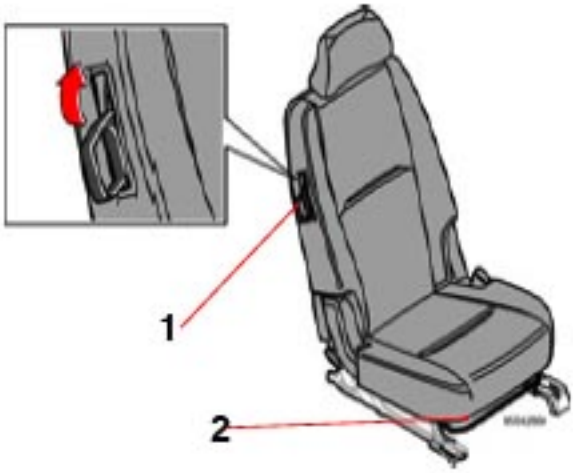
## Rear seats




**Entering the optional third row of seats**
**Tilting the outboard backrests in the second row of seats:**

- Pull up the handle (1), hold it up, and tilt the backrest forward to move the seat.
- Return the backrest to the upright position to slide the seat back to its original position.

**Forward/rearward seat adjustment**
Lift the adjustment bar (2) to move the seat forward or rearward.

**Removing the center console (seven-seat models only)[1]**
In order to make it possible to move the center seat in the second row of seats as far forward as possible (seven-seat models only), the rear section of the center console can be removed.

- Pull the handle (see illustration above) and lift out the console.
- To return the console to its original position, slide it back into position until it clicks into place.

**Sliding center seat - second row (seven-seat models only)**
The center seat in the second row can be moved farther forward than the outboard seats. This makes it possible for a child seated in this position to sit closer to the people in the front seats.

1. The center console cannot be removed on vehicles equipped with the optional Rear Seat Entertainment System.

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## Rear seats

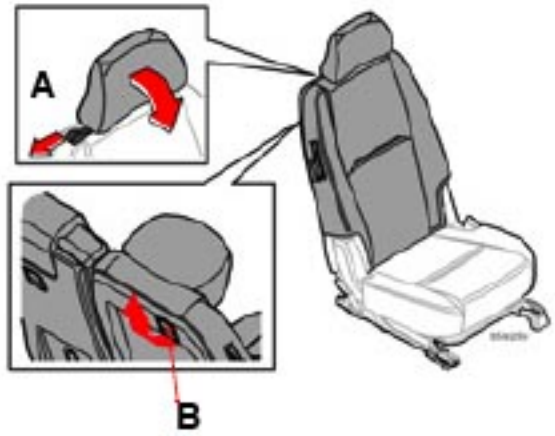
**Head restraint - second row, center position**
The head restraint in the center position can be adjusted to 4 different heights.
**To raise** - pull the restraint up until it clicks into one of the four heights positions.
**To lower** - press the button at the base of the support (see illustration above) and press the head restraint down.

**WARNING!**

- Please note that the lowest head restraint position is only intended for use when the backrest is to be folded down, or when the seat is not occupied.
- The head restraint is intended to help protect the head/neck in a collision. Ensure that it is properly adjusted for the occupant of the seat.

pg. 90 Interior

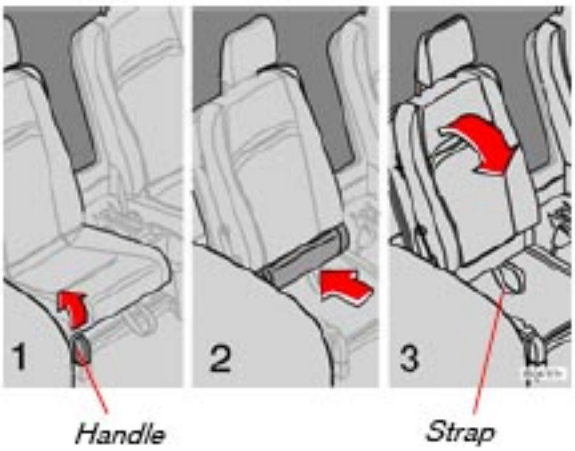
## Rear seats




**Folding the backrests - second row of seats**

- Move the seat(s) to their rearmost position (seven-seat models only).
- Pull the loop (A) to fold down an outboard head restraint. Press down the center head restraint if necessary (see page 89).
- Pull the handle (B) outward to release the backrest. The backrests are designed to lock at a 45 degree angle. Pull the handle again to continue pressing it down until it locks in the horizontal position.

To return the backrests to the upright position, pull handle B and pull the backrest up.




**Folding the backrests - third row of seats (option)**
**Folding down the backrest**
If necessary, fold in the load anchorage eyelets before folding down the backrests.
- Move the seats in the second row as far forward as possible, see page 88.
- Pull up the handle in illustration 1 above.
- Push the seat cushion firmly rearward, under the backrest.
- Fold down the backrests[1] (the head restraints fold down automatically) to the horizontal position.

**Returning the backrest to the upright position**
- Fold up the backrest to the upright position.
- Grasp the strap (see illustration 3 above) and pull the seat cushion out until it locks in place. This also locks the backrest in the upright position.

1. Please note that the head restraints in this row cannot be vertically adjusted.

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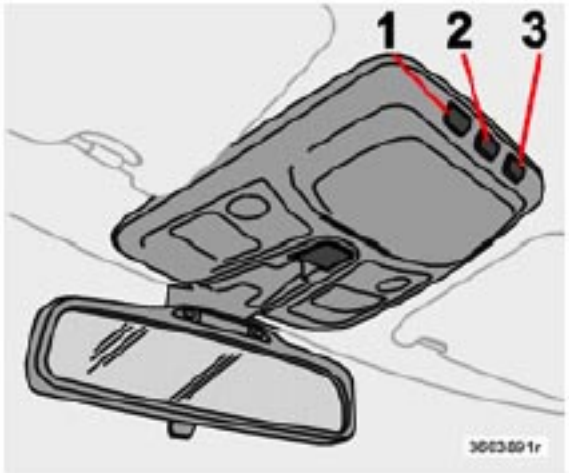
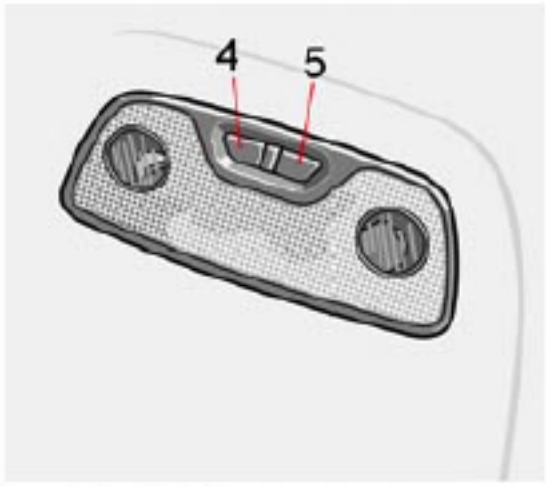
## Interior lighting



**Reading lights and courtesy light**

1. Driver's side front reading lamp
2. Courtesy lights
3. Passenger's side front reading lamp

The reading lights can be switched on or off by pressing buttons 1 or 3.
The courtesy light can be turned on or off by pressing button 2.




*Rear reading lights*

4. Driver's side rear reading light
5. Passenger's side rear reading light

The rear reading lights can be switched on and off by pressing buttons 4 or 5.

**Automatic function**

The reading lights and courtesy lights will switch off automatically approximately 10 minutes after the engine has been turned off. The lights can be turned off sooner by pressing the respective buttons.
The courtesy lights come on automatically[1] and remain on for approximately 30 seconds when:

- The vehicle has been unlocked from the outside with the remote control or key
- If the engine has been switched off and the ignition key has been turned to position 0

The courtesy lights will come on and remain on for approximately 10 minutes when:

- One of the doors is opened (assuming the courtesy lighting has not previously been switched off)

The courtesy lighting will go off when:

- The engine is started
- The vehicle is locked from the outside with the remote control or key

The automatic function can be disconnected by pressing button 2 for more than 3 seconds.
Briefly pressing the button again automatically reconnects the function.
The courtesy light timer periods can be changed. Contact your Volvo retailer.

1. This function is light dependent and is only activated in dark conditions.

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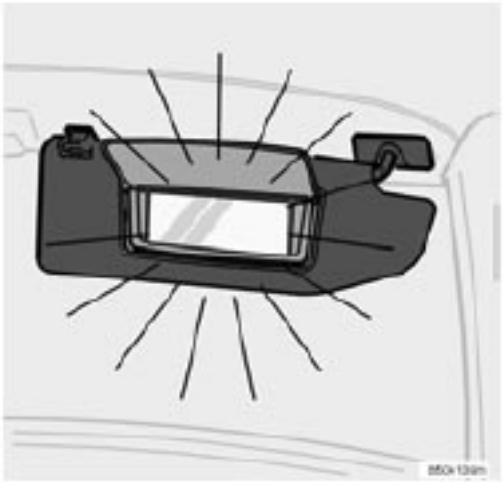
## Interior lighting



**Vanity mirror**
The light comes on when you open the cover.

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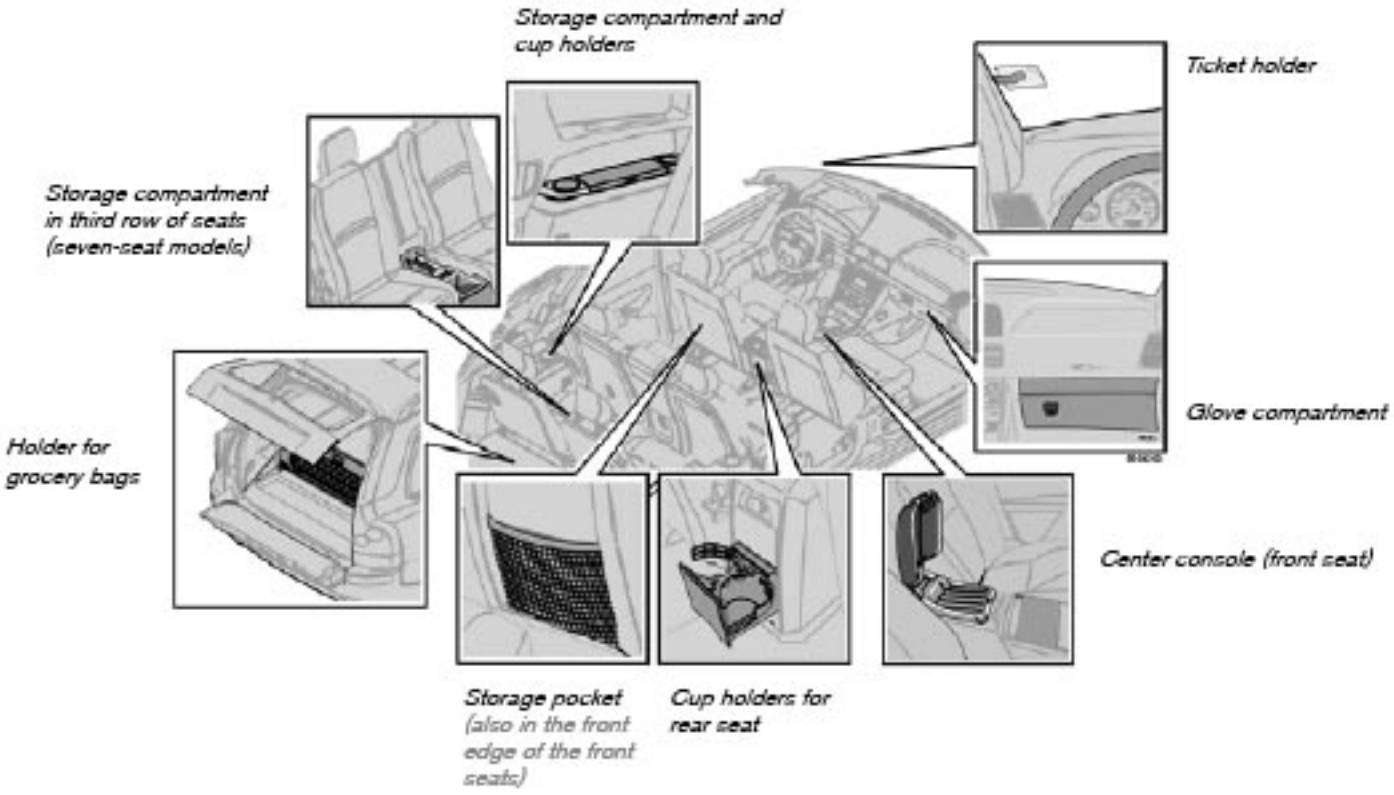
## Storage compartments




**WARNING!**

Make sure that no hard, sharp or heavy objects lie on or in any of the storage areas where they might cause injury during sudden braking.

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## Storage compartments

**Storage compartment in the center console**
To open the lid on the storage compartment, press the lower edge of the opening latch (see illustration above). This lid can be folded back to form a small table area for rear seat passengers.
Lift the tray under the lid to expose the deep storage bin with slots for CD storage.

**Cup holders for the front seats**
Two cup holders are provided for the front seat occupants. Press lightly on the rear edge of the cover to open it.

**Ashtray (accessory)**
An ashtray insert is available from your Volvo retailer. This insert slides into either of the cup holders.

**Pen holder**
There is a pen holder in the center console, in front of the gear selector.

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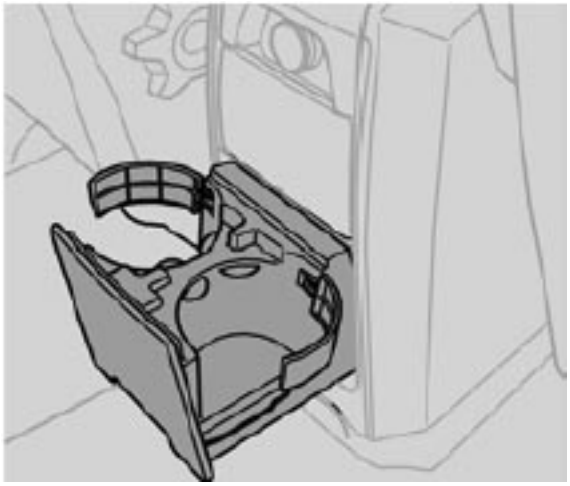
## Storage compartments

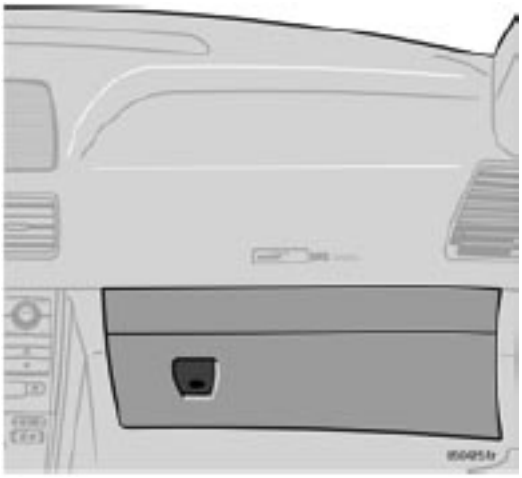
**Storage compartment in rear side of the center console**
Grasp the upper edge of cover and pull to open this compartment.

**Ashtray (accessory)**
An ashtray insert is available from your Volvo retailer.



**Cup holders for the rear seats**

- Grasp the lower edge of the panel to pull out the cup holders in the rear side of the center console.
- The cup holder insert can be removed to provide space for a large plastic bottle. Pull the insert straight up to remove it. Press down to reinsert it.



**Glove compartment**
The glove compartment can be used to store things such as the owner's manual, maps, pens, etc.

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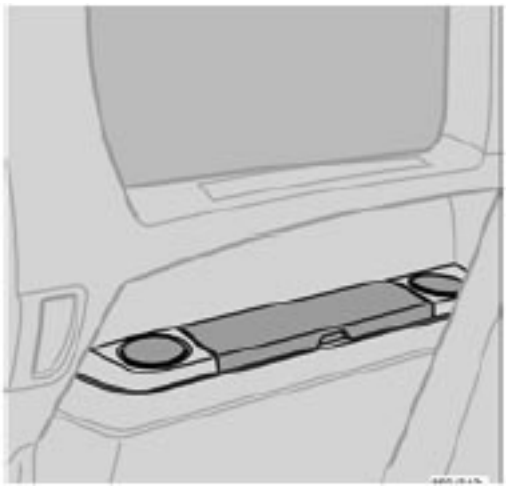
## Storage compartments

**Coat hanger**
Use the coat hanger for light jackets, etc.

**Storage space between rear seats (seven-seat models) - option**
This storage space provides compartments for pens or other small items.



**Rear side storage compartments and cup holders (seven-seat models)**
Lift the lid to access the storage compartment.

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## Securing cargo

As a safety precaution, all cargo in your vehicle should be securely anchored to keep it from being thrown forward in the event of sudden braking, etc. The vehicle is equipped with eyelets in the cargo space to which straps or other cargo restraints can be attached.

**WARNING!**

The eyelets are not to be used as passenger restraints or as anchorages for child restraints.

Consult your Volvo retailer about suitable accessories for this purpose.

**Remember that an object weighing 44 lbs (20 kg) produces a force of 2,200 lbs (1,000 kg) in a head-on collision at 30 mph (50 km/h)!**

**Keep the following in mind when loading the vehicle:**

- The load carrying capacity of your vehicle is determined by factors such as the number of passengers, the amount of cargo, the weight of any accessories that may be installed, etc. See the section "Vehicle loading" in the chapter "Wheel and tires" for more detailed information.
- Load the cargo **against** the backrest.
- Load heavy cargo as low as possible.
- If no one is sitting in the outboard rear seat(s), reinforce the backrest by fastening the seat belts.
- Never load cargo above the backrest without a cargo net.

**WARNING!**

When the rear backrest(s) are folded down, the vehicle should not be loaded to a level higher than 2 in. (5 cm) below the upper edge of the rear side windows. Objects placed higher than this level could impede the function of the inflatable curtain.

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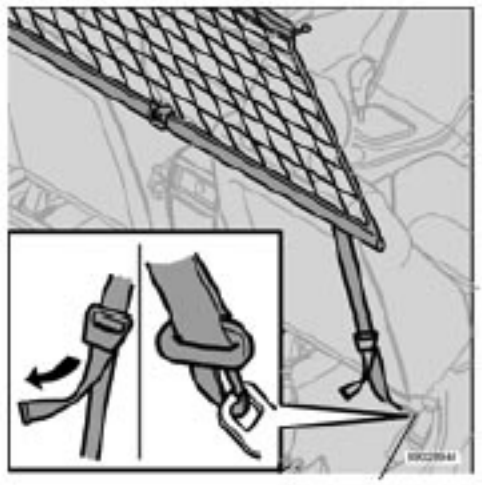
## Securing cargo

*Attachment bracket*

**Nylon cargo net (accessory)**
The Volvo XC90 can be equipped with a cargo net made of strong nylon fabric.
This net can be installed in two places:

- Behind the rear seat backrests (the second row of seats in seven-seat models)
- Behind the front seat backrests if the rear seat backrests (the second row of seats in seven-seat models) have been folded down.



*Attachment eyelet in front seat rail*

If the vehicle is equipped with the cargo area cover, lift the cover out of the vehicle before installing the cargo net.
- The upper and lower rods of the cargo net are hinged. Position the rods so that they are straight and lock in position.
- Insert the end of the upper rod in one of the attachment brackets (see illustration above).
- Insert the other end of the rod in the attachment bracket on the opposite side of the vehicle.
- Attach the lower straps to the eyelets on the floor if the net has been installed in the rear attachment brackets.
Use the eyelets in the front seat rails if the net has been installed in the forward attachment brackets.

**NOTE:** On seven-seat models: When using the net in the rear attachment brackets, be sure it is installed in front of the side armrests.
- Adjust the straps to pull the net taut.

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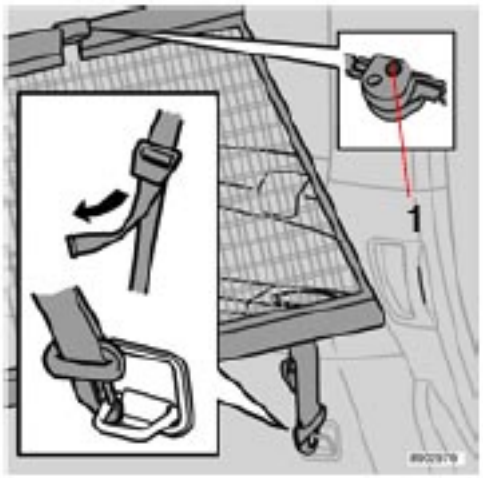
## Securing cargo



**Folding and storing the cargo net**
Press the release buttons on the hinges (1 in the illustration above) and fold the net. The cargo net can be stored under the floor of the cargo area on five-seat models.

**WARNING!**

- Be sure the cargo net is properly inserted in the attachment brackets and the straps are correctly attached to the eyelets and pulled taut.
- Do not use the net if it is damaged in any way.
- When it is not in use, store the net so that it cannot be thrown forward in the event of sudden braking, etc.

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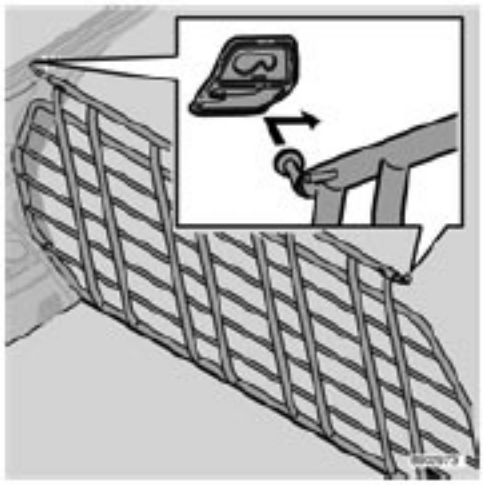
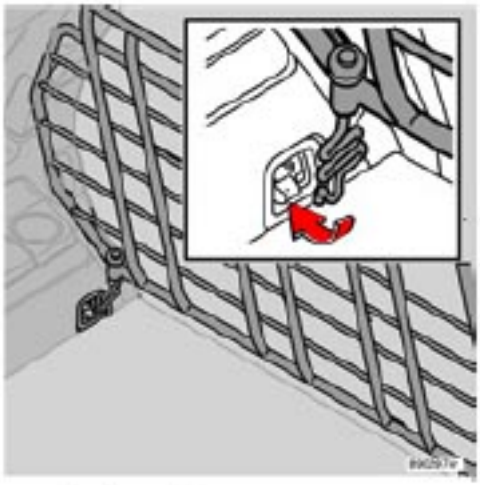
## Securing cargo



*Upper attachments*

**Steel grid (accessory)**
**Installing the grid, upper attachments**
- Lift in the grid through the tailgate or through one of the rear passenger doors (in this case, fold down the rear seat backrests/backrests in second row of seats in seven-seat models).
- Insert one of the grid's upper attachments into an attachment bracket above one of the rear passenger doors (see illustration above).
- Push the grid's attachment into the forward position in the attachment bracket (see inset illustration above) to lock the attachment in place.



*Lower attachments*

- Insert the grid's other upper attachment in the attachment bracket above the opposite rear passenger door, and press the attachment into the forward position in the attachment bracket to lock it in place.

**Installing the grid, lower attachments**
- Insert the lower attachment bracket through the steel grid's lower mount from underneath.
- Install the spring on the attachment bracket and tighten the knob.
- Secure the attachment bracket hook in the lower cargo eyelet. Turn the knob to tension the attachment bracket in the cargo eyelet.
- Repeat the operation on the opposite side.
- Tighten both attachment brackets alternatively.
- Place the protective caps on the threads above the knobs.

**WARNING!**

**Seven-seat models:**

- The backrests of the optional third row seats must be folded down when installing the steel grid.
- The steel grid is installed behind the second row of seats in seven-seat models. To avoid the risk of injury, no one should be allowed to sit in the third row of seats when the steel grid is in place in the vehicle.

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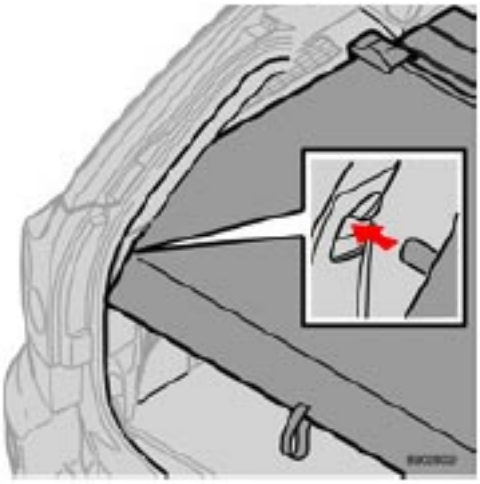
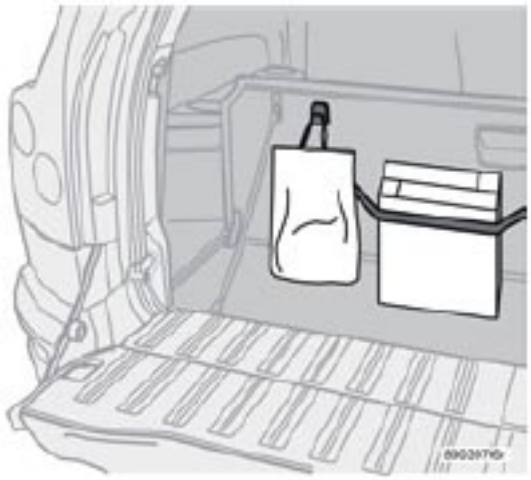
## Securing cargo



**Cargo area cover (option)**
**Installing the cargo area cover:**
- Press the end pieces of the cargo area cover down in the holders.
- Pull out the cargo area cover and hook it in the holes in the rear cargo area pillars (see illustration above).

**Removing the cargo area cover:**
Press the end pieces of the cover inward. Pull up and lift out.



**Grocery bag holder**
- Fold down the lower section of the tailgate.
- Fold up the rear section of the cargo compartment floor.
- Hang or secure your grocery bags by means of the straps or holders.

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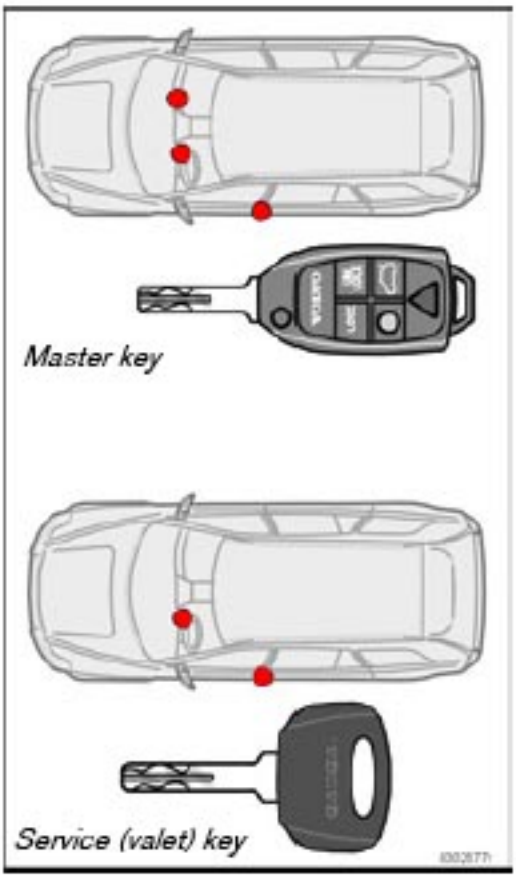
pg. 104 Locks and alarm

## Keys and remote controls




**Keys**
Two types of keys are provided with your vehicle; master keys and a service (valet) key.

- The **master key**, the remote control, and the central locking button may all be used to lock and unlock all of your vehicle's locks.
- The **service key** will operate only the driver's door and the ignition switch. It is intended to help deter unwanted entry into the glove compartment.
- Turn the key once to unlock the **driver's door only**.
- Turn the key again (within 10 seconds) to unlock all doors and the tailgate.
- One turn with the key towards lock in the drivers door locks all doors and the tailgate.
- Use the switch on the driver's door armrest to lock/unlock the vehicle from the inside.

**WARNING!**

If the doors are locked while driving, this may hinder rapid access to the occupants of the vehicle in the event of an accident. (Also see information on "Child safety locks"

**NOTE:** To help prevent accidentally locking the keys in the vehicle, the central locking system is designed to unlock the doors immediately if the key is left in the ignition switch, the vehicle is locked using the lock button on the door and the door is then closed. A sound from the lock will be audible at

this time.

*Please note that this function will not unlock the doors if the engine is running.*

**Immobilizer (start inhibitor)**
Each of the keys supplied with your vehicle contains a coded transmitter. The code in the key is transmitted to an antenna in the ignition switch where it is compared to the code stored in the start inhibitor module. The vehicle will start only with a properly coded key.
Each key has a unique code, which your Volvo retailer uses if new keys are required. A maximum of six remote controls/keys can be programmed and used for one vehicle. If you misplace a key, take the other keys to an authorized Volvo retailer for reprogramming as an antitheft measure.
If two of the keys to your vehicle are close together, e.g., on the same key ring, when you try to start the vehicle, this could cause interference in the immobilizer system and result

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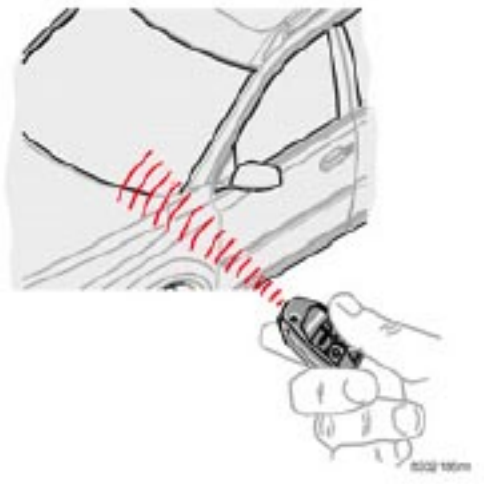
## Keys and remote controls

in the vehicle not starting. If this should occur, remove one of the keys from the key ring before trying to start the vehicle again.

This device complies with part 15 of the FCC rules. Operation is subject to the following condition: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



**Remote controls**
Your vehicle is equipped with two coded remote control transmitters with integrated ignition keys called Key Integrated Remote (KIR). These transmitters use a radio frequency that will enable you to lock/

unlock all doors and the tailgate from a distance of 10-15 feet (3-5 meters).
The transmitters will also activate or allow "keyless" entry into the passenger compartment or the tailgate. They will also activate or deactivate your vehicle's alarm system(s). The vehicle can also be locked/ unlocked with the key.

1. Fold key in/out
2. Lock
3. Approach lighting
4. "Panic" function
5. Unlock tailgate
6. Unlock

If one of the transmitters is misplaced, contact your nearest authorized Volvo retailer for replacement.

**Using the remote control**
**Button 1:** Press to extend the key. This button must also be pressed when the key is folded back into the slot in the side of the remote control unit.

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## Keys and remote controls

**Button 2 (Lock):** Press once to lock all doors, and the tailgate.

**Button 3 (Approach lighting):** Press this button when approaching the vehicle at night to light up the interior courtesy light, parking lights, license plate lights and the lights in the sideview mirrors.

**Button 4 (Panic):** See page 111 for more information on this function.

**Button 5 (Tailgate unlock):** Press this button to unlock the tailgate (without unlocking the other doors).

**NOTE:** This function will not open the tailgate.

**Button 6 (Unlock):** Press this button once to unlock the driver's door only. Wait for at least 1 second and press the button again (within 10 seconds) to unlock all doors, and the tailgate.

**NOTE:**
- If an airbag deploys, your vehicle's SRS control module will attempt to automatically unlock all doors.
- The keys may also be used to lock and unlock the doors, and to activate and deactivate the alarm system.
- To avoid leaving your keys in the vehicle, make a habit of always locking the vehicle with the remote control.
- If the key blade section of the remote is not fully folded out when starting the vehicle, the immobilizer function may make it impossible to start the engine.
- The vehicle can be locked even if a door is open. When the door(s) are closed, they will be locked. Please be aware that the keys could be locked in the car when this is done.

**Automatic re-locking**
If the doors are unlocked, the locks will automatically reengage (re-lock) and the alarm will rearm after 2 minutes unless a door or the tailgate has been opened. This helps prevent the car from inadvertently being left unlocked.

- **FCC ID:LQNP2T-APU**

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- **Canadian 2306104388**

Model 504 2927 by Donnelly
Operation is subject to the following conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

- **Canadian 2306104388A**

Model 509 977 by Connaught Electronics
Operation is subject to the following conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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## Keys and remote controls

**WARNING!**

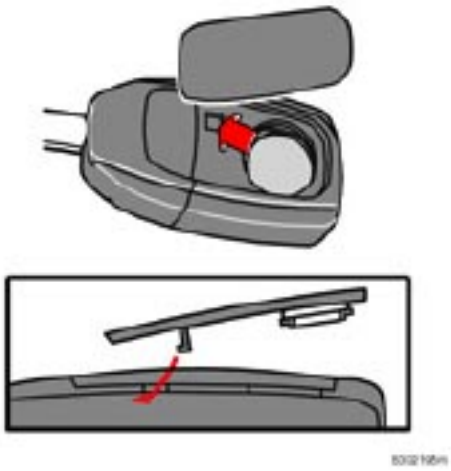
Never use the transmitter to lock the doors from inside the vehicle.

Doing so would ACTIVATE:

- the break-in alarm, which would sound if one of the doors were opened
- the optional interior motion and inclination alarm sensors.

Doing so would DEACTIVATE:
- the moonroof and interior courtesy light controls.
- the central locking buttons on the front door armrests, although the interior door handles would still function to allow occupants to leave the vehicle.

Disabled features would remain disabled until the remote is used again to unlock the vehicle.
In addition, locking an occupied vehicle would hinder rapid access to the occupants in an accident or emergency.



**Replacing the battery in the remote control**
If the range of the transmitter is noticeably reduced, this indicates that the battery is weak and should be replaced.

**To replace the battery:**
- Carefully pry open the rear edge of the cover with a small screwdriver.
- Insert a new 3-volt, CR2032 battery, with the battery's plus side up. Avoid touching the contact surfaces of the battery with your fingers.
- Press the cover back into place. Ensure that the rubber seal is correctly positioned to help keep out

moisture.

**NOTE:** The old battery should be disposed of properly at a recycling center or at your Volvo retailer.

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## Locking and unlocking

**Locking and unlocking the vehicle from the inside**
The switch on the driver's door armrest can be used to lock or unlock all doors and the tailgate, and to set the alarm.
Each door can also be locked with the lock button on the respective door and opened by pulling the door handle on the door.

**Automatic locking**
The function locks the doors automatically when the vehicle's speed exceeds approximately 5 mph (7 km/h). The doors will then remain locked until a door

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## Starting and driving

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### pg. 114 Starting and driving

## General information

**Engine oil**

Although some oil consumption occurs during normal engine operation, more oil is consumed when the engine is new as the internal parts generate higher friction while wearing-in to each other. From the time the engine is new until the first maintenance is performed, the oil consumption could be higher than normal. For this reason, it is especially important to check the oil every time you refuel your vehicle during this period. See page 187.

**Fuel requirements**
**Octane rating**
Volvo engines are designed for optimum performance on unleaded premium gasoline with an AKI octane rating of 91 or above. AKI (ANTI KNOCK INDEX) is an average of the Research Octane Number, RON, and the Motor Octane Number, MON. ((RON + MON)/2). The minimum octane requirement is AKI 87 (RON 91).

**Deposit control gasoline (detergent additives)**
Volvo recommends the use of detergent gasoline to control engine deposits. Detergent gasoline is effective in keeping injectors and intake valves clean. Consistent use of deposit control gasolines will help ensure good drivability and fuel economy. If you are not sure whether the gasoline contains deposit control additives, check with the service station operator.

**NOTE:** Volvo does not recommend the use of external fuel injector cleaning systems.

**Unleaded fuel**
Each Volvo has a three-way catalytic converter and must use only unleaded gasoline. U.S. and Canadian regulations require that pumps delivering unleaded gasoline be labelled "UNLEADED". Only these pumps have nozzles which fit your vehicle's filler inlet. It is unlawful to dispense leaded fuel into a vehicle labelled "unleaded gasoline only". Leaded gasoline damages the three-way catalytic converter and the heated oxygen sensor system. Repeated use of leaded gasoline will lessen the effectiveness of the emission control system and could result in loss of emission warranty coverage. State and local vehicle inspection programs will make detection of misfueling easier, possibly resulting in emission test failure for misfueled vehicles.

**NOTE:** Some U.S. and Canadian gasolines contain an octane enhancing additive called methyl-cyclopentadienyl manganese tricarbonyl (MMT). If such fuels are used, your Emission Control System performance may be affected, and the Check Engine Light (malfunction indicator lamp) located on your instrument panel may light. If this occurs, please return your vehicle to an authorized Volvo retailer for maintenance.

**Gasoline containing alcohol and ethers "Oxygenated fuels"**
Some fuel suppliers sell gasoline containing "oxygenates" which are usually alcohols or ethers. In some areas, state or local laws require that the service pump be marked indicating use of alcohols or ethers. However, there are areas in which the pumps are unmarked. If you are not sure whether there is alcohol or ethers in the gasoline you buy, check with the service station operator. To meet seasonal air quality standards, some areas require the use of "oxygenated" fuel.
Volvo allows the use of the following "oxygenated" fuels; however, the octane ratings listed on this page must still be met.
Alcohol - Ethanol: Fuels containing up to 10% ethanol by volume may be used. Ethanol may also be referred to as Ethyl alcohol, or "Gasohol".
Ethers - MTBE: Fuels containing up to 15% MTBE may be used.

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## Fuel requirements

*Typical pump octane label*

**Octane rating**
Volvo engines are designed to achieve rated horsepower, torque, and fuel economy performance using premium 91 octane fuel. Volvo recommends premium for best performance, but using 87 octane or above will not affect engine reliability. In demanding driving conditions, such as operating the vehicle in hot weather, towing a trailer, or driving for extended periods at higher altitudes than normal, it may be advisable to switch to higher octane fuel (91 or higher) or to change gasoline brands to fully utilize your engine's capacity, and for the smoothest possible operation.

*Typical pump octane label*

**NOTE:** When switching to higher octane fuel or changing gasoline brands, it may be necessary to fill the tank more than once before a difference in engine operation is noticeable.

**Fuel Formulations**
Do not use gasoline that contains lead as a knock inhibitor, and do not use lead additives. Besides damaging the exhaust emission control systems on your vehicle, lead has been strongly linked to certain forms of cancer.
Many fuels contain benzene as a solvent. Unburned benzene has been strongly linked to certain forms of cancer. If you live in an area where you must fill your own gas tank, take precautions. These may include:

- standing upwind away from the filler nozzle while refueling
- refueling only at gas stations with vapor recovery systems that fully seal the mouth of the filler neck during refueling
- wearing neoprene gloves while handling a fuel filler nozzle.

**Use of Additives**
With the exception of gas line antifreeze during winter months, do not add solvents, thickeners, or other store-bought additives to your vehicle's fuel, cooling, or lubricating systems. Overuse may damage your engine, and some of these additives contain organically volatile chemicals. Do not needlessly expose yourself to these chemicals.

**WARNING!**

Carbon monoxide is a poisonous, colorless, and odorless gas. It is present in all exhaust gases. If you ever smell exhaust fumes inside the vehicle, make sure the passenger compartment is ventilated, and immediately return the vehicle to your retailer for correction.

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## Fuel requirements

**WARNING!**

**Driving with the tailgate open**: Driving with the tailgate open could lead to poisonous exhaust gases entering the passenger compartment. If the tailgate must be kept open for any reason, proceed as follows:

- Close the windows
- Set the ventilation system control to air flow to floor, windshield and side windows and blower control to its highest setting.

**Weight distribution affects handling**
At the specified curb weight your vehicle has a tendency to understeer, which means that the steering wheel has to be turned more than might seem appropriate for the curvature of a bend. This ensures good stability and reduces the risk of rear wheel skid. Remember that these properties can alter with the vehicle load. The heavier the load in the cargo area, the less the tendency to understeer.

**Handling, roadholding**
Vehicle load, tire design and inflation pressure all affect vehicle handling. Therefore, check that the tires are inflated to the recommended pressure according to the vehicle load. See "Tire pressure" section. Loads should be distributed so that capacity weight or maximum permissible axle loads are not exceeded.

**Conserving electrical current**
Keep the following in mind to help minimize battery drain:
- When the engine is not running, avoid turning the ignition key to position II (see page 121). Many electrical systems (the audio system, the optional infotainment/ navigation systems, power windows, etc) will function with the ignition key in position I. This position reduces drain on the battery.
- Please keep in mind that using systems, accessories, etc that consume a great deal of current when the engine is not running could result in the battery being completely drained.

**NOTE:** A warning message will be displayed in the text window in the instrument panel when the battery charge is low.

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## Refueling

*The fuel filler cap can be placed on the hook on the fuel filler door while refueling*

**Fuel filler door**

Press the button on the light switch panel (see illustration on page 56) when the vehicle is at a standstill to unlock the fuel filler door. Please note that the fuel filler door will remain unlocked until the vehicle begins to move forward. An audible click will be heard when the fuel filler door relocks.

If you intend to leave your vehicle while it is being refueled, this feature enables you to lock the doors/tailgate while leaving the fuel filler door unlocked.

You can also keep the vehicle locked if you remain inside it during refueling. The central locking button does not lock the fuel filler door. Be sure the fuel filler door is not obstructed and is completely closed after refueling.

**Open the fuel filler cap slowly during hot weather.**

**NOTE:** During a transitional period, a small number of service stations may still have fuel nozzles that are not compatible with the fuel filler neck on vehicles equipped with the evaporative control system.

**Refueling**

The fuel tank holds approximately 21.1 US gals. (80 liters) with sufficient volume left over to accommodate possible expansion of the fuel in hot weather. Be aware that the "usable" tank capacity will be somewhat less than the specified maximum. When the fuel level is low, such factors as ambient temperature, the fuel's "Reid vapor pressure" characteristics, and terrain can affect the fuel pump's ability to supply the engine with an adequate supply of fuel. Therefore, it is advisable to refuel as soon as possible when the needle nears the red zone, or when the fuel warning light comes on.

**⚠WARNING!**

Never carry a cell phone that is **switched on** while refueling your vehicle. If the phone rings, this may cause a spark that could ignite gasoline fumes, resulting in fire and injury.

pg. 118 Starting and driving

## Refueling

**CAUTION!**

- Do not refuel with the engine running[1]. Turn the ignition off or to position I. If the ignition is on, an incorrect reading could occur in the fuel gauge.
- After refueling, close the fuel filler cap by turning it clockwise until it clicks into place[1].
- Avoid overfilling the fuel tank. Do not press the handle on the filler nozzle more than one extra time. Too much fuel in the tank in hot weather conditions can cause the fuel to overflow. Overfilling could also cause damage to the emission control systems.
- Avoid spilling gasoline during refueling. In addition to causing damage to the environment, gasolines containing alcohol can cause damage to painted surfaces, which may not be covered under the New Vehicle Limited Warranty.
- Do not use gasolines containing methanol (methyl alcohol, wood alcohol). This practice can result in vehicle performance deterioration and can damage critical parts in the fuel system. Such damage may not be covered under the New Vehicle Limited Warranty.

1. If the fuel filler cap is not closed tightly or if the engine is running when the vehicle is refueled, the Check Engine Light (malfunction indicator lamp) may indicate a fault. However, your vehicle's performance will not be affected. Use only Volvo original or approved fuel filler caps.

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## Starting the vehicle

**Starting the engine**
- Fasten the seat belt.

**WARNING!**

Before starting, check that the seat, steering wheel and mirrors are adjusted properly. Make sure the brake pedal can be depressed completely. Adjust the seat if necessary. See pages 84 and 87.

- Apply the parking brake (hand brake) if not already set. The gear selector is locked in the (**P**)ark position (**SHIFTLOCK**).

- Without touching the accelerator pedal, turn the ignition key[1] to the starting position. Allow the starter to operate for up to 10 seconds. Release the key as soon as the engine starts[2]. If the engine fails to start, repeat this step.

**NOTE:**
- If the key blade section of the remote is not fully folded out when starting the vehicle, the immobilizer function may make it impossible to start the engine.
- After a cold start, idle speed may be noticeably higher than normal for a short period. This is done to help bring components in the emission control system to their normal operating temperature as quickly as possible, which enables them to control emissions and help reduce the vehicle's impact on the environment.
- For cold starts at altitudes above 6000 ft (1800 meters), depress the accelerator pedal halfway and turn the key to the starting position. Release the pedal slowly when the engine starts.

- To release the gear selector from the (**P**)ark position, the engine must be running (or the ignition key must be in position II) and the brake pedal must be depressed.

- Select the desired gear. The gear engages after a very slight delay which is especially noticeable when selecting R.

**NOTE:** Your vehicle is equipped with a **KEYLOCK** system. When the engine is switched off, the gear selector must be in the (**P**)ark position before the key can be removed from the ignition switch. When starting in cold weather, the transmission may shift up at slightly higher engine speeds than normal until the automatic transmission fluid reaches normal operating temperature.

**NOTE:** Do not race a cold engine immediately after starting. Oil flow may not reach some lubrication points fast enough to prevent engine damage.

**WARNING!**

An extra mat on the driver's floor can cause the accelerator pedal to catch. Check that the movement of the accelerator pedal is not impeded. No more than one protective floor covering may be used at one time.

1. If two of the keys to your vehicle are close together, e.g. on the same key ring when you try to start the vehicle, this could cause interference in the immobilizer system and result in the vehicle not starting. If this should occur, remove one of the keys from the key ring before trying to start the vehicle again.
2. On vehicles equipped with the autostart feature, release the key immediately. See also page 121.

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## Starting the vehicle

**WARNING!**

Always place the gear selector in Park and apply the parking brake before leaving the vehicle. Never leave the vehicle unattended with the engine running. Always open garage doors fully before starting the engine inside a garage to ensure adequate ventilation. The exhaust gases contain carbon monoxide, which is invisible and odorless but very poisonous.

**CAUTION!**

**Automatic transmission**
The engine should be idling when you move the gear selector. Never accelerate until after you feel the transmission engage! Accelerating immediately after selecting a gear will cause harsh engagement and premature transmission wear. Selecting P or N when idling at a standstill for prolonged periods of time will help prevent overheating of the automatic transmission fluid.

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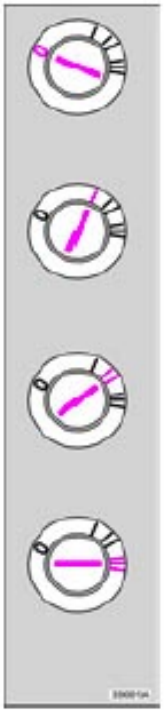
## Economical driving

### Ignition switch and steering wheel lock

**0 - Locked position:**
Remove the key to lock the steering wheel[1].

> **WARNING!**
>
> Never turn the key to position O while driving or when the vehicle is being towed.



**I - Intermediate position[2] - "radio position":** Certain accessories, radio, etc. on, daytime running lights off.

**II - Drive position:** The key position when driving. The vehicle's entire electrical system is connected.

**III - Start position:** Release the key when the engine starts. The key returns automatically to the Drive position.
**A chime will sound if the key is left in the ignition and the driver's door is opened.**

**Autostart**
This function makes it possible to start the vehicle without holding the key in the start position (position III) until the engine starts. Turn the key to position III and release it. The starter motor will then operate automatically (for up to ten seconds) until the engine starts.

**Steering wheel lock**
The steering wheel lock might be under tension when the vehicle is parked.
Turn the steering wheel slightly to free the ignition key.
**In order to help reduce vehicle theft, make sure the steering wheel lock is engaged before leaving the vehicle.**

**WARNING!**

Never switch off the ignition (turn the ignition key to position 0) or remove the key from the ignition switch while the vehicle is in motion. This could cause the steering wheel to lock, which would make the vehicle impossible to steer.

**Economical driving conserves natural resources**

Better driving economy may be obtained by thinking ahead, avoiding rapid starts and stops and adjusting the speed of your vehicle to immediate traffic conditions. Observe the following rules:

- Bring the engine to normal operating temperature as soon as possible by driving with a light foot on the accelerator pedal for the first few minutes of operation. A cold engine uses more fuel and is subject to increased wear.
- Whenever possible, avoid using the vehicle for driving short distances. This does not allow the engine to reach normal operating temperature.
- Drive carefully and avoid rapid acceleration and hard braking.
- Use the transmission's (**D**)rive position as often as possible and avoid using "kickdown" to help improve fuel economy.
- Do not exceed posted speed limits.
- Avoid carrying unnecessary items (extra load) in the vehicle.
- Maintain correct tire pressure. Check tire pressure regularly (when tires are cold).
- Remove snow tires when threat of snow or ice has ended.

1. The gear selector must be in the (**P**)ark position (automatic transmission).
2. Please be aware that leaving the key in this position will increase battery drain.

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## Economical driving

- Note that roof racks, ski racks, etc, increase air resistance and also fuel consumption.
- At highway driving speeds, fuel consumption will be lower with the air conditioning on and the windows closed than with the air conditioning off and the windows open.
- Using the onboard trip computer's fuel consumption modes can help you learn how to drive more economically.

**Other factors that decrease gas mileage are:**

- Dirty air cleaner
- Dirty engine oil and clogged oil filter
- Dragging brakes
- Incorrect front end alignment.

Some of the above mentioned items and others are checked at the standard Maintenance Service intervals.

**CAUTION!**

Drive slowly and carefully if going through standing water (i.e. flooded roadways, etc.). Damage to the engine could result if excess water is drawn in through the air intake system. Never drive the vehicle in water deeper than 18 inches (48 cm).

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## Difficult driving conditions

**Driving on rough/unpaved surfaces**
The Volvo XC90 is designed primarily for on-road driving, and it has excellent handling characteristics on very rough or unpaved roads.
When driving on poorly maintained or unpaved roads, please keep the following in mind:

- Reduce speed on rough surfaces to minimize possible damage to the vehicle's underbody.
- When driving on soft surfaces such as dry sand or snow, try to avoid stopping if at all possible.

**WARNING!**

Avoid driving diagonally across steep inclines as this could increase the risk of a roll-over. Try to drive straight up or down the slope.
If the road is very steep, avoid turning the vehicle around to help avoid the risk of rolling over. Back the vehicle up or down the incline instead.

**NOTE:** Avoid driving on steep inclines if the fuel tank is nearly empty. If the flow of fuel to the engine is interrupted due to the vehicle's angle of inclination, this could result in damage to the three-way catalytic converter. We recommend keeping the fuel tank at least half full when driving on steep inclines.

**Driving through water**
The vehicle can be driven through water up to a depth of approximately 18 inches (48 cm), at a maximum speed of 6 mph (10 km/h).
Take particular care when driving through flowing water.
Clean the electrical connections for trailer wiring after driving in mud or water.
When driving through water, maintain low speed and do not stop in the water.

**WARNING!**

After driving through water, press lightly on the brake pedal to ensure that the brakes are functioning normally. Water or mud can make the brake linings slippery, resulting in delayed braking effect.

**CAUTION!**

- Engine damage will occur if water is drawn into the air cleaner.
- If the vehicle is driven through water deeper than 18 in (48 cm), water may enter the differential and the transmission. This reduces the oil's lubricating capacity and may shorten the service life of these components.
- Do not allow the vehicle to stand in water up to the door sills longer than absolutely necessary. This could result in electrical malfunctions.
- If the engine has been stopped while the car is in water, do not attempt to restart the engine. Have the car towed out of the water.

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## Automatic transmission with Geartronic

**P Park**
Use this position when starting the engine or parking the vehicle.
**Never use P while the vehicle is in motion.**
The parking brake should also be set whenever the vehicle is parked.
**The gear selector is mechanically locked in the P position (SHIFTLOCK).** To release the gear selector from this position, the engine must be running (or the ignition key must be in position II) and the brake pedal must be depressed.

**N (Neutral)**
Neutral - no gear engaged. Use the parking brake.

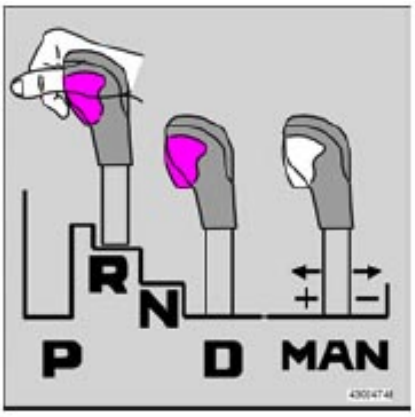
**WARNING!**

Never leave the vehicle unattended when the engine is running. If, by mistake, the gear selector is moved from P, the vehicle may start moving.

**R (Reverse)**
Never engage **R** while the vehicle is moving.

**D (Drive)**
**D** is the normal driving position and should be used as often as possible to help improve fuel economy. The vehicle should not be moving when shifting from **R** to the **D** position.

**NOTE:** The transmission has 6 forward speeds.



*Shift gate positions*

**Automatic transmission - shift gate positions**
Depress the button on the front of the gear selector knob to move between the R, N, D, and P positions.

**Kickdown**
Automatic shift to a lower gear (kickdown) is achieved by depressing the accelerator pedal fully and briskly. An upshift will occur when approaching the top speed for a particular gear or by releasing the accelerator pedal slightly.
Kickdown can be used for maximum acceleration or when passing at highway speeds.

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## Automatic transmission with Geartronic

**NOTE:** The gear selector must be in the D (Drive) position for kickdown to function.

**Manual shifting - Geartronic**
You can move the gear selector freely between the (**MAN**)ual and (**D**)rive positions while driving.
- Geartronic has 6 forward speeds.
- A "lock-up" feature[1] reduces engine speed and help saves fuel. The currently selected gear will be displayed in the instrument panel (see page 46).
- To access the (**MAN**)ual shifting position from (**D**)rive, move the gear selector to the left to **MAN**.
- To return to the (**D**)rive position from **MAN**, move the gear selector to the right.

**While driving**
If you select the (**MAN**)ual position while driving, the gear that was being used in the (**D**)rive position will also initially be selected in (**MAN**)ual position.
- Move the gear selector forward (toward "+") to shift to a higher gear or rearward (toward "-") to shift to a lower gear.
- If you hold the gear selector toward "-", the transmission will downshift one gear and will utilize the braking power of the engine. If the current speed is too high for using a lower gear, the downshift will not occur until the speed has decreased enough to allow the lower gear to be used.
- If you slow down to a very low speed, the transmission will automatically shift down.
- When starting in the (**MAN**)ual position, 3rd gear is the highest gear that may be selected.

**W - Winter/Wet driving mode - enhanced vehicle traction**
Press the button at the base of the gear selector to engage/disengage this driving mode (see illustration).
- Mode W will only function if the gear selector is in the (**D**)rive position.
- When the W driving mode is engaged, this is displayed in the instrument panel (see page 46).

This mode may be selected for starting/ moving off on slippery roads.

1. Six-speed transmission: gears 2, 3, 4, 5, and 6.

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## All Wheel Drive (option)

**All Wheel Drive (AWD) - general information**
Your Volvo can be equipped with permanent All Wheel Drive (option), which means that power is distributed automatically between the front and rear wheels. Under normal driving conditions, most of the engine's power is directed to the front wheels. However, if there is any tendency for the front wheels to spin, an electronically controlled coupling distributes power to the wheels that have the best traction.

**Tire dimensions**
Volvo recommends that you always drive on tires of the same brand, size, construction (radial), tread pattern, load-, speed-, traction- , temperature-, and treadwear rating. Never drive on mixed tires, except for brief periods when the temporary spare tire is in use.
Always use properly inflated tires of correct dimensions. Tire size and inflation pressures are shown on the tire inflation pressure placards, located on the driver's side B-pillar (the structural member at the side of the vehicle, at the rear of the driver's door opening), or on the inside of the fuel filler door on Canadian models.

**Temporary Spare**
The temporary spare tire is for temporary, low-speed, short-distance use only. Replace it with a full-sized tire as soon as possible. Do not drive on the temporary spare at speeds above 50 m.p.h. (80km/h) or for distances greater than 50 miles (80 km).
Never install snow chains on a temporary spare.

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## Brake system

**BRAKE Brake circuit malfunction**
The brake system is a hydraulic system consisting of two master cylinders and two separate brake circuits. If a problem should occur in one of these circuits, it is still possible to stop the vehicle with the other brake circuit.
If the brake pedal must be depressed farther than normal and requires greater foot pressure, the stopping distance will be longer.
A warning light in the instrument panel will light up to warn the driver that a fault has occurred.
If this light comes on while driving or braking, stop immediately and check the brake fluid level in the reservoir.

**NOTE:** Press the brake pedal hard and maintain pressure on the pedal - do not pump the brakes.

**WARNING!**

If the fluid level is below the MIN mark in the reservoir or if a "Brake failure - Service urgent" message is displayed in the text window: DO NOT DRIVE. Have the vehicle towed to a Volvo retailer and have the brake system inspected.

**NOTE:** When the vehicle is at a standstill and the engine is idling, e.g. at a traffic light and the brake pedal is depressed, the pedal may go down slightly. This is a normal function of the power-assisted brake system.

**Power brakes function only when the engine is running**
The power brakes utilize vacuum pressure which is only created when the engine is running. Never let the vehicle roll to a stop with the engine switched off.
If the power brakes are not working, the brake pedal must be pressed approximately four times harder than usual to make up for the lack of power assistance. This can happen for example when towing your vehicle or if the engine is switched off when the vehicle is rolling. The brake pedal feels harder than usual.

**Water on brake discs and brake pads affects braking**
Driving in rain and slush or passing through an automatic car wash can cause water to collect on the brake discs and pads. This will cause a delay in braking effect when the pedal is depressed. To avoid such a delay when the brakes are needed, depress the pedal occasionally when driving through rain, slush etc. This will remove the water from the brakes. Check that brake application feels normal. This should also be done after washing or starting in very damp or cold weather.

**Severe strain on the brake system**
The brakes will be subject to severe strain when driving in mountains or hilly areas, or when towing a trailer. Vehicle speed is usually slower, which means that the cooling of the brakes is less efficient than when driving on level roads. To reduce the strain on the brakes, shift into a lower gear and let the engine help with the braking. Do not forget that, if you are towing a trailer, the brakes will be subjected to a greater than normal load.

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## Brake system

**Anti-lock brakes (ABS)**

If the warning lamp lights up there is a malfunction of the ABS system (the standard braking system will however function) and the vehicle should be driven cautiously to a Volvo retailer for inspection. The Anti-lock Braking System (ABS) helps to improve vehicle control (stopping and steering) during severe braking conditions by limiting brake lockup.

When the system "senses" impending lockup, braking pressure is automatically modulated in order to help prevent lockup, which could lead to a skid.

**The system performs a self-diagnostic test when the engine is started and when the vehicle first reaches a speed of approximately 12 mph (20 km/h).** The brake pedal will pulsate several times and a sound may be audible from the ABS control module. This is normal.

To obtain optimal effect from the ABS system, constant pressure should be kept on the brake pedal. Do not pump the brake pedal.

The switching of the ABS modulator will be audible and the brake pedal will pulsate during braking. Please be aware that ABS does not increase the absolute braking potential of the vehicle. While control will be enhanced, ABS will not shorten stopping distances on slippery surfaces.

**ABS with EBD (Electronic Brake Force Distribution)**
EBD is an integrated part of the ABS system. EBD regulates the hydraulic pressure to the rear brakes to help provide optimal braking capacity. The brake pedal will pulsate during braking, which is normal.
If the BRAKE and ABS warning lights come on at the same time, this could indicate a fault in the brake system.
- Stop the vehicle in a suitable place and switch off the engine.
- Restart the engine.
- If both warning lights go off, no further action is required.
- If both lights are still on after the engine has been restarted, switch off the engine again and check the brake fluid level (see page 185 for the location of the brake fluid reservoir).

**WARNING!**

If the fluid level is below the MIN mark in the reservoir or if a "Brake failure - Service urgent" message is displayed in the text window: DO NOT DRIVE. Have the vehicle towed to a Volvo retailer and have the brake system inspected.

- If the brake fluid level is above the MIN mark, drive carefully to an authorized Volvo retailer and have the brake system inspected.

**Emergency Brake Assistance (EBA)**
The EBA function is designed to provide full brake effect immediately in the event of sudden, hard braking. The system is activated by the speed with which you depress the brake pedal.

**NOTE:**
- When the EBA system is activated, the brake pedal will go down and pressure in the brake system immediately increases to the maximum level. You must maintain full pressure on the brake pedal in order

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## Brake system

to utilize the system completely. There will be no braking effect if the pedal is released. EBA is automatically deactivated when the brake pedal is released.
- When the vehicle has been parked for some time, the brake pedal may sink more than usual when the engine is started.

This is normal and the pedal will return to its usual position when it is released.

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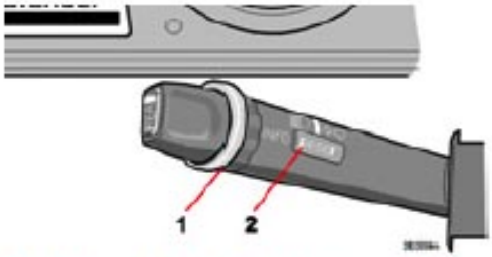
## Stability system

**Dynamic Stability Traction Control (DSTC)**
The stability system consists of a number of functions designed help reduce wheel spin, counteract skidding, and to generally help improve directional stability.

**NOTE:** A pulsating sound will be audible when the system is actively operating and is normal.

**Traction control (TC)**
This function is designed to help reduce wheel spin by transferring power from a drive wheel that begins to lose traction to the wheel on the opposite side of the vehicle (on the same axle).
TC is most active at low speeds.
This is one of DSTC's permanent functions and cannot be switched off.

**Spin control (SC)**
The spin control function is designed to help prevent the drive wheels from spinning while the vehicle is accelerating. Under certain circumstances, such as when driving with snow chains, or driving in deep snow or loose sand, it may be advisable to temporarily switch off this function for maximum tractive force.



*Controls on the left-side steering wheel lever*

**Temporarily switching off Spin control**
- Turn the thumbwheel (1) on the left-side steering wheel lever until the DSTC menu is displayed.
- Hold down the RESET button (2) to toggle between DSTC SPIN CONTROL ON or OFF.

**NOTE:**
- The message DSTC SPIN CONTROL OFF indicates that the stability system's spin control function has temporarily been switched off.
- The stability control indicator light will illuminate and remain on until spin control has been reactivated.
- The spin control function is automatically enabled each time the engine is started.
- DSTC ON indicates that all system functions are active.

**Active Yaw Control (AYC)**
This function helps maintain directional stability, for example when cornering, by braking one or more of the wheels if the vehicle shows a tendency to skid or slide laterally.
This is one of DSTC's permanent functions and cannot be switched off

**WARNING!**

The car's handling and stability characteristics will be altered if the DSTC system functions have been disabled.

**DSTC-related messages in the text window**

- "TRACTION CONTROL TEMPORARILY OFF" - The system has been temporarily switched off due to high brake temperature and will automatically switch on again when the brakes have cooled.

"ANTI SKID SERVICE REQUIRED" - the system has been automatically disengaged due to a fault. An authorized Volvo retailer should check the system.

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## Stability system

**Symbols in the instrument panel**
**The Stability Control indicator light**

This light indicates different conditions, depending on how it illuminates.

***The Stability Control indicator light illuminates for approximately 2 seconds***
This indicates that the system is performing a self-diagnostic test when the ignition is switched on.

***The Stability Control indicator light flashes***
This indicates that the stability system is actively functioning to help counteract wheel spin and/or a skid.

***The Stability Control indicator light glows steadily***
"ANTI SKID SERVICE REQUIRED" will be displayed in the text window at the same time.
A fault is indicated in the stability system.
- Stop the vehicle in a safe place and switch off the engine.
- Restart the engine.
- If the indicator light goes out, the fault was temporary and no further action is required.
- If the indicator light remains on, drive to an authorized Volvo workshop as soon as possible to have the system checked.

***The Stability Control indicator light glows steadily***
If "DSTC SPIN CONTROL OFF" is displayed in the text window at the same time, this is a reminder that spin control has been disabled by the driver.

**The warning symbol**

**The warning symbol glows steadily yellow**
The system has been temporarily switched off due to high brake temperature. "TRACTION CONTROL TEMPORARILY OFF" will be displayed. The system will automatically switch on again when the brakes have cooled.

**WARNING!**

The stability system is intended to help improve driving safety. It supplements, but can never replace, the driver's judgement and responsibility when operating the vehicle. Speed and driving style should always be adapted to traffic and road conditions.

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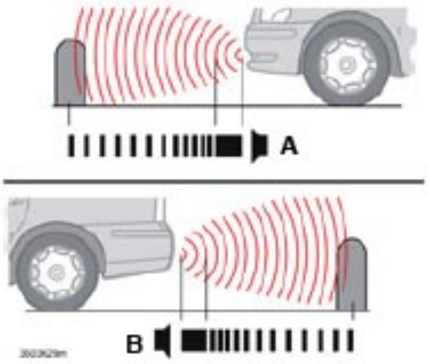
## Front/rear park assist (accessory/option)




A. Front (accessory as available)
B. Rear (option)

**Front/rear park assist**
The park assist system(s) are designed to assist you when driving into parking spaces, garages, etc. They utilize ultrasound sensors located in the bumpers to measure the distance to a vehicle or other object, or a person who may be close to the front or rear of the vehicle.

**When is park assist active**
**Front:** the system is active from the time the engine is started until the vehicle exceeds a speed of approximately 10 mph (15 km/h). It is also active when the vehicle is backing up. Front park assist reactivates automatically when the vehicle's speed goes under 10 mph (15 km/h).
**Rear:** the system is active when the engine is running and reverse gear is selected.

**NOTE:**
- If the vehicle is equipped with front and rear park assist, both systems will either be activated or deactivated together. They cannot be used separately.
- The indicator light in the button (see the illustration on page 52) will light up to indicate that park assist system(s) are activated.

**When park assist is actively working:**
- The audio system's volume will be reduced.
- An intermittent signal will be audible from the speakers to indicate that you are approaching a person, object, parked vehicle, etc. The signals begin when the distance between the bumper and the object is:

**Rear:** approximately 5 feet (1.5 meters)
**Front:** approximately 2.5 ft (0.8 meters)

- At a distance of approximately 1 foot (30 cm), the signal will become constant. If objects are close to both the front and rear bumpers, the signal will alternate between the front and rear speakers.

**Deactivating the system(s)**
- Press the Park assist button on the center console (see page 52) to temporarily deactivate the system(s).
- The indicator light in the button will go out when the system(s) have been deactivated.
- If the vehicle is equipped with front and rear park assist, both systems will be deactivated by pressing the button.
Park assist will be automatically reactivated the next time the engine is started.

**NOTE:** It may be necessary to deactivate one or both of the park assist systems in certain cases.
- **Rear park assist**: towing a trailer, carrying bicycles in a rear-mounted carrier, etc, could trigger the rear park assist system's sensors.
- **Front park assist**: it may not be possible to combine auxiliary headlights and front park assist since these lights could trigger the system's sensors.

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## Front/rear park assist (accessory/option)

**Faults in the system**

If the yellow warning symbol illuminates and a message is shown in the information display, the system is not functioning properly. Consult a Volvo retailer or authorized service technician.

**Cleaning the sensors**
For the system to function properly, the sensors in the front and/or rear bumpers should be kept clean. They can be cleaned with car washing detergent and a sponge.

**WARNING!**

These systems are designed to be a supplementary aid when parking the vehicle. They are not, however, intended to replace the driver's attention and judgement.

**CAUTION!**

In certain circumstances, the park assist system may give unexpected warning signals that can be caused by external sound sources that use the same ultrasound frequencies as the system. This may include such things as the horns of other vehicles, wet tires on asphalt, pneumatic brakes, motorcycle exhaust pipes, etc. This does not indicate a fault in the system.

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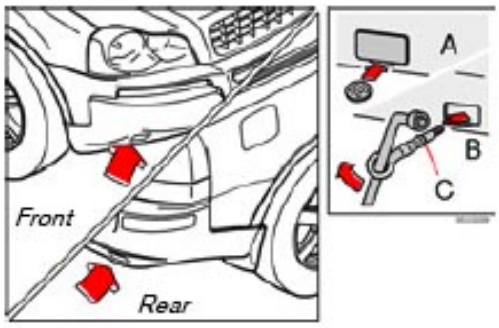
## Towing




*Positions for attaching towing eyelets*

**Emergency towing**
The towing eyelet is located in the tool bag, under the floor of the cargo area. This eyelet must be screwed into the positions provided on the right sides of either the front or rear bumper (see illustrations).

**To attach the towing eyelet:**
A. Use a coin to pry open the lower edge of the cover (A).
B. Screw the towing eyelet (C) in place (B), first by hand and then using the tire iron until it is securely in place.
After the vehicle has been towed, the eyelet should be removed and returned to the tool bag. Press the cover back into position.

**Precautions when the vehicle is in tow**
- The steering wheel must be unlocked. Turn the ignition key to position I or II.
- The gear selector must be in position N.
- Maximum speed: 50 mph (80 km/h). Do not exceed the maximum allowable towing speed.
- Maximum distance with front wheels on ground: 50 miles (80 km).
- While the vehicle is being towed, try to keep the tow rope taut at all times.
- The vehicle should only be towed in forward direction.

**CAUTION!**

- Please check with state and local authorities before attempting this type of towing, as vehicles being towed are subject to regulations regarding maximum towing speed, length and type of towing device, lighting, etc.
- If the vehicle's battery is dead, do not attempt to start the vehicle by pushing or pulling it as this will damage the three-way catalytic converter(s). The engine must be jump started using an auxiliary battery (see page 136).
- If the vehicle is being towed on a flat bed truck, the towing eyelets must not be used to secure the vehicle on the flat bed. Consult the tow truck operator.

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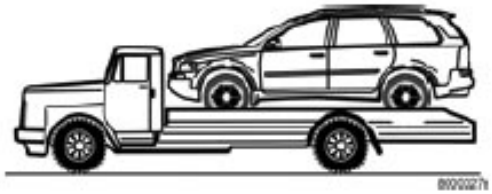
## Towing

**WARNING!**

- Remember that the power brakes and power steering will not function when engine is not running. The braking and steering systems will function but the brake pedal pressure required is 3 - 4 times above normal and greater steering effort must be exerted.
- The towing eyelets must not be used for pulling another vehicle out of a ditch or for any similar purpose involving severe strain.
- Do not use the towing eyelets to pull the vehicle up onto a flat bed tow truck.



**Towing vehicles with front wheel drive/All Wheel Drive**
Volvo recommends the use of flat bed equipment.
If wheel lift equipment must be used, please use extreme caution to help avoid damage to the vehicle. **In this case, the vehicle should be towed with the rear wheels on the ground if at all possible**.
If it is absolutely necessary to tow the vehicle with the front wheels on the ground, please refer to the towing information on the previous page.

**CAUTION!**

Sling-type equipment applied at the front will damage radiator and air conditioning lines.
It is equally important not to use sling-type equipment at the rear or apply lifting equipment inside the rear wheels; serious damage to the rear axle may result.
If the vehicle is being towed on a flat bed truck, the towing eyelets must not be used to secure the vehicle on the flat bed. Consult the tow truck operator.

**WARNING!**

Do not use the towing eyelets to pull the vehicle up onto a flat bed tow truck.

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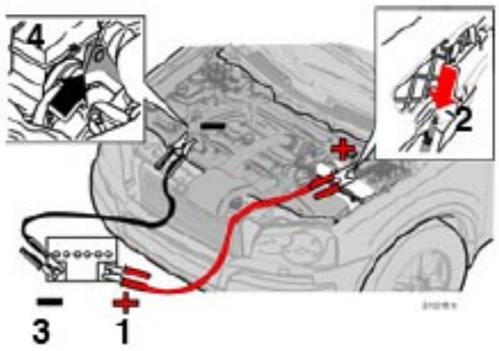
## Jump starting




**Jump starting**
Follow these instructions to jump start your vehicle's dead battery or to jump start another vehicle's dead battery using your vehicle. Although your vehicle's battery is located under the floor of the cargo area, jumper cables should be connected in the **engine compartment**, to the points shown in the illustrations.
If the 12-volt auxiliary battery to be used is in another vehicle, check that the vehicles are not touching to prevent premature completion of a circuit. Be sure to follow jump starting instructions provided for the other vehicle.

**To jump start your vehicle:**
- Switch off the ignition.
- First connect the auxiliary battery positive (+) terminal (1) to the positive (+) terminal in your vehicle's engine compartment (2), located under a small black plastic cover attached to the fuse box cover, marked with a "+" sign. Remove the cover on the main fuse box if necessary to access this terminal. Then connect the auxiliary battery's negative (-) terminal (3) to the ground point in your vehicle's engine compartment (4).
- Start the engine in the assisting vehicle, then start the engine in the vehicle with dead battery.
- After the engine has started, first remove the negative (-) terminal jumper cable. Then remove the positive (+) terminal jumper cable.

**WARNING!**

**PROPOSITION 65 WARNING!**
Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm. Wash hands after handling.

**WARNING!**

- Do not connect the jumper cable to any part of the fuel system or to any moving parts. Avoid touching hot manifolds.
- Never expose the battery to open flame or electric spark.
- Do not smoke near the battery.
- Batteries generate hydrogen gas, which is flammable and explosive.
- Battery fluid contains sulfuric acid. Do not allow battery fluid to contact eyes, skin, fabrics or painted surfaces. If contact occurs, flush the affected area immediately with water. Obtain medical help immediately if eyes are affected.
- Failure to follow the instructions for jump starting can lead to personal injury.

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## Towing a trailer

The maximum weights recommended by Volvo for trailers **with brakes** are shown in the table below.

| No. of occupants | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Seating position | Front seat | Front seat | 2nd row of seats | 2nd row of seats | 2nd row of seats | Optional 3rd row of seats | Optional 3rd row of seats |
| **All Wheel Drive** | 5,000 lbs (2250 kg) | 5,000 lbs (2250 kg) | 4,500 lbs (2050 kg) | 3,700 lbs (1700 kg) | 2,900 lbs (1350 kg) | 1,800 lbs (800 kg) | Trailer towing not recom-mended |
| Max. trailer hitch tongue load | 500 lbs (225 kg) | 500 lbs (225 kg) | 450 lbs (205 kg) | 370 lbs (170 kg) | 290 lbs (135 kg) | 180 lbs (80 kg) | - |
| **Front Wheel Drive** | 4,000 lbs (1800 kg) | 4,000 lbs (1800 kg) | 4,000 lbs (1800 kg) | 4,000 lbs (1800 kg) | 3,700 lbs (1650 kg) | 2,500 lbs (1150 kg) | 1,400 lbs (650 kg) |
| Max. trailer hitch tongue load | 400 lbs (180 kg) | 400 lbs (180 kg) | 400 lbs (180 kg) | 400 lbs (180 kg) | 370 lbs (165 kg) | 250 lbs (115 kg) | 140 lbs (65 kg) |

**NOTE:**

- **Recommended hitch tongue load: not more than 10% of the trailer's weight.** The trailer load should be positioned so that it does not shift and the tongue load should be 10% of the trailer's weight. However, the tongue load should not exceed the maximum permissible weights indicated in the table above.
- When towing trailers **without** brakes, the maximum permissible trailer weight is 1,700 lbs (750 kg).
- If necessary, redistribute the weight of any cargo in the trailer to avoid excessive weight on the trailer hitch.
- The maximum trailer weight listed in the table for All Wheel Drive models, 5,000 lbs (2250 kg) is only applicable when there are not more than two occupants in the vehicle, in the front seats, with a combined weight of 300 lbs (135 kg), with no other cargo in the vehicle.
- The maximum weight listed for Front Wheel Drive models, 4,000 lbs (1800 kg) is only applicable when there are not more than four occupants in the vehicle, in the front seats and second row of seats, with a combined weight of 600 lbs (270 kg), with no other cargo in the vehicle.

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## Towing a trailer

- Please be aware that the load on the trailer hitch is part of the vehicle's total load carrying capacity. The amount of cargo in the vehicle and the trailer must be limited so that the gross vehicle weight and maximum permissible rear axle weight (see page 209) are not exceeded.
- Vehicles used for towing a trailer on a regular basis, or for long-distance highway towing should be equipped with an automatic transmission oil cooler and Volvo's automatic self-leveling system for the rear suspension. Consult your Volvo retailer.
- Volvo recommends the use of Volvo trailer hitches that are specially designed for the vehicle.
- All Volvo models are equipped with energy-absorbing shock-mounted bumpers. Trailer hitch installation should not interfere with the proper operation of this bumper system.
- Increase tire pressure to recommended full inflation pressure. See chapter "Wheels and tires."
- When your vehicle is new, avoid towing heavy trailers during the first 620 miles (1,000 km).
- Engine and transmission are subject to increased loads. Therefore, engine coolant temperature should be closely

watched when driving in hot climates or hilly terrain. Use a lower gear and turn off the air conditioner if the temperature gauge needle enters the red range.

- If the automatic transmission begins to overheat, a message will be displayed in the text window.
- Hauling a trailer affects handling, durability, and economy.
- It is necessary to balance trailer brakes with the towing vehicle brakes to provide a safe stop (check and observe state/local regulations).
- Do not connect the trailer's brake system directly to the vehicle's brake system.
- Remove the ball and drawbar assembly when the hitch is not being used.
- Volvo recommends the use of synthetic engine oil when towing a trailer over long distances or in mountainous areas.

**NOTE:**

- When parking the vehicle with a trailer on a hill, apply the parking brake before putting the gear selector in (P)ark. When starting on a hill, put the gear selector in (D)rive before releasing the parking brake. Always follow the trailer manufacturer's recommendations for wheel chocking.
- If you use the manual (Geartronic) shift positions while towing a trailer, make sure the gear you select does not put too much strain on the engine (using too high a gear).

**WARNING!**

- Bumper-attached trailer hitches must not be used on Volvos, nor should safety chains be attached to the bumper.
- Trailer hitches attaching to the vehicle rear axle must not be used.
- Never connect a trailer's hydraulic brake system directly to the vehicle brake system, nor a trailer's lighting system directly to the vehicle lighting system. Consult your nearest authorized Volvo retailer for correct installation.
- When towing a trailer, the trailer's safety wire must be correctly fastened to the hole or hook provided in the trailer hitch on the vehicle. The safety wire should never be fastened to or wound around the drawbar ball.

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## Towing a trailer

**Smoother starts with a trailer**

Models equipped with the V8-engine and the 6-speed automatic transmission have a built-in function that reduces acceleration slightly in first gear when the vehicle is towing a trailer. This is done to help avoid wheel spin and to make starting off smoother.

- This function is activated when the trailer's electrical connector is plugged into the electrical socket mounted near the trailer hitch.
- The function is automatically deactivated when the trailer's wiring is disconnected from the socket. The vehicle will then accelerate normally.

**NOTE:** Since this function is activated when a connector is plugged into the electrical socket near the trailer hitch, it will be activated by any electrical equipment (e.g. bicycle racks with lighting, etc) that is plugged in, and will remain active until the equipment is unplugged from the socket.

**Leveling**

If your vehicle is equipped with automatic leveling, the rear suspension always retains the correct ride height regardless of the load.

- The system adjusts the rear suspension to the correct level after the vehicle has been driven a short distance.

- When the vehicle is stationary, the rear suspension lowers, which is normal.

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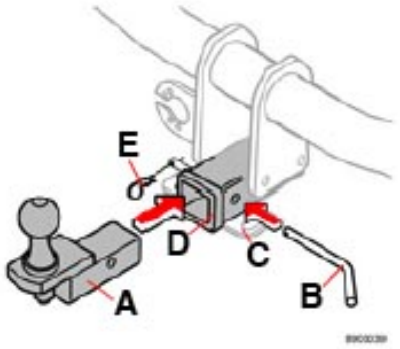
## Detachable trailer hitch




A. Ball holder
B. Locking bolt
C. Safety wire attachment
D. Hitch assembly
E. Cotter pin

**Installing the ball holder**
- If necessary, remove the cotter pin from the locking bolt and slide the locking bolt out of the hitch assembly.
- Slide the ball holder into the hitch assembly.
- Align the hole in the ball holder with the one in the hitch assembly.
- Slide the locking bolt through the hitch assembly/ball holder.
- Insert the cotter pin in the hole at the end of the locking bolt.

**Removing the ball holder**
- Remove the cotter pin from the locking bolt and slide the locking bolt out of the ball holder/hitch assembly.
- Pull the ball holder out of the hitch assembly.

A cover for the hitch assembly can be purchased from your Volvo retailer.

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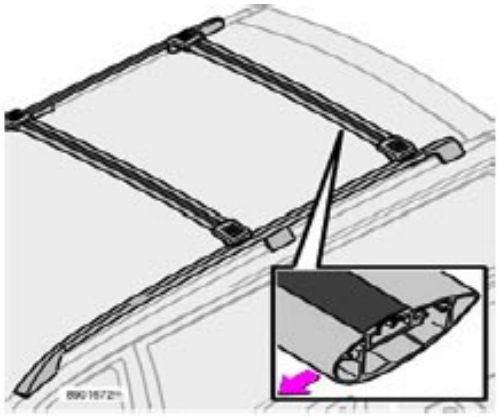
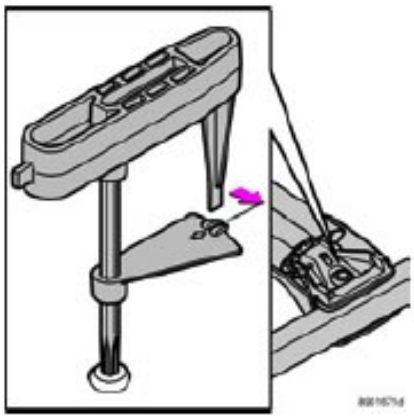
## Load carriers (accessory)



**Positioning the load carriers**
Make sure that the wing-shaped load carriers are installed on the roof rails with the rounded edge forward (see the inset illustration above). The load carriers are identical and can be placed anywhere along the roof rails.
When not in use, we recommend that the front load carrier be placed approximately 2 inches (5 cm) in front of the center roof rail anchorage point and the rear load carrier approximately 1.5 inches (3.5 cm) in front of the rear rail anchorage. This will help to reduce wind noise.



**NOTE:** Volvo accessories mounted on these load carriers will require T-track mounting hardware for correct installation. Please consult your Volvo retailer.

**Installing the load carriers**
Make sure that the load carrier is pressed firmly out against the roof rail. Screw the load carrier in place. Use the supplied torque wrench and tighten to the mark on the wrench (corresponding to 6 Nm). See illustration.

**WARNING!**

Loads carried on the vehicle's roof should not exceed 220 lbs (100 kg), including the weight of the load carriers and any other load carrying equipment (ski boxes, bicycle racks, etc.). Excessive loads on the roof can adversely affect the handling and roadholding characteristics of the vehicle.

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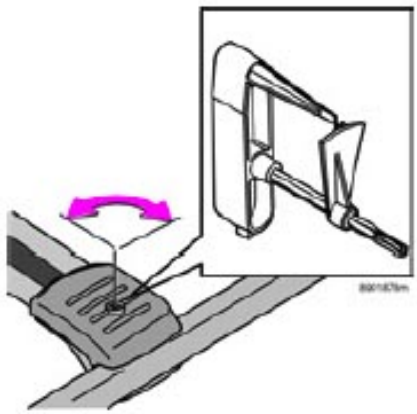
## Load carriers (accessory)



**Load carrier cover**
The vehicle's ignition key or the stud on the edge of the supplied torque wrench can be used to undo or tighten the cover. Turn a quarter turn (90 degrees). See illustration.

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## Cold weather precautions

If you wish to check your vehicle before the approach of cold weather, the following advice is worth noting:
- Make sure that the engine coolant contains 50 percent antifreeze. Any other mixture will reduce freeze protection. This gives protection against freezing down to -31°F (-35°C). See section "Coolant". **The use of "recycled" antifreeze is not approved by Volvo. Different types of antifreeze must not be mixed.**
- Volvo recommends using only genuine Volvo antifreeze in your vehicle's radiator. Your Volvo retailer stocks plenty of Volvo engine coolant to protect your vehicle during cold weather.
- Try to keep the **fuel tank** well filled - this prevents the formation of condensation in the tank. In addition, in extremely cold weather conditions it is worthwhile to add fuel line de-icer before refueling.
- The viscosity of the **engine oil** is important. Oil with low viscosity (thinner oil) improves cold-weather starting as well as decreasing fuel consumption while the engine is warming up. For winter use, 5W-30 oil, particularly the synthetic type[1], is recommended. Be sure to use good quality oil but do not use cold-weather oil for hard driving or in warm weather. See section "Engine oil" for more information.
- The load placed on the **battery** is greater during the winter since the windshield wipers, lighting, etc. are used more often. Moreover, the capacity of the battery decreases as the temperature drops. In very cold weather, a poorly charged battery can freeze and be damaged. It is therefore advisable to check the state of charge more frequently and spray an antirust oil on the battery posts.
- Volvo recommends the use of **snow tires** on all four wheels for winter driving - see section "Wheels and tires."
- To prevent the **washer fluid reservoir** from freezing, add washer solvents containing antifreeze (see page 188 for the location of the washer fluid reservoir). This is important since dirt is often splashed on the windshield during winter driving, requiring the frequent use of the washers and wipers. Volvo Washer Solvent should be diluted as follows:

- **Down to 14° F (-10° C)**: 1 part washer solvent and 4 parts water
- **Down to 5° F (-15° C)**: 1 part washer solvent and 3 parts water
- **Down to 0° F (-18° C)**: 1 part washer solvent and 2 parts water
- **Down to -18° F (-28° C)**: 1 part washer solvent and 1 part water

- Use Volvo Teflon Lock Spray in the locks.

**NOTE:** Avoid the use of de-icing sprays as they can cause damage to the locks.

**W - Winter/Wet driving mode - enhanced vehicle traction**

- Mode W will only function if the gear selector is in the (**D**)rive position.
- Press the button at the base of the gear selector to engage/disengage this driving mode.
- An LED in the button will light up to indicate that W is engaged and this will also be displayed in the instrument panel (see page 46).
- This mode may be selected for starting/ moving off on slippery roads.

1. Synthetic oil is not used when the oil is changed at the normal maintenance service intervals except at owner request and at additional charge. Please consult your Volvo retailer.



## Before a long distance trip

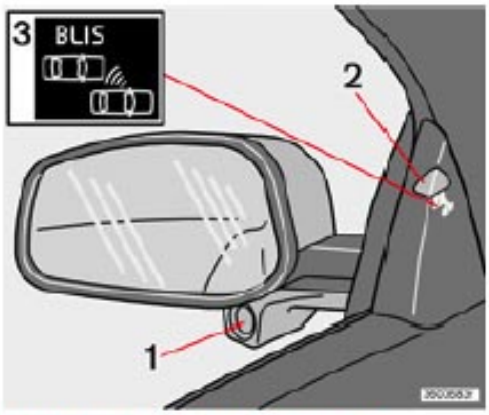
It is always worthwhile to have your vehicle checked at a Volvo retailer before driving long distances. Your retailer will also be able to supply you with bulbs, fuses, spark plugs and wiper blades for your use in the event that problems occur. As a minimum, the following items should be checked before any long trip:

- Check that engine runs smoothly and that fuel consumption is normal.
- Check for fuel, oil, and fluid leakage.
- Check transmission oil level[1].
- Check condition of drive belts.
- Check state of the battery's charge.
- Examine tires carefully (the spare tire as well), and replace those that are worn. Check tire pressures.
- The brakes, front wheel alignment, and steering gear should be checked by your Volvo retailer only.
- Check all lights, including high beams.
- Reflective warning triangles are legally required in some states/provinces.
- Have a word with your Volvo retailer if you intend to drive in countries where it may be difficult to obtain the correct fuel.
- Consider your destination. If you will be driving through an area where snow or ice are likely to occur, consider snow tires.

1. To prevent injury from contact with hot surfaces, do not inspect your vehicle's transmission fluid yourself. Have your vehicle's transmission fluid level inspected by a qualified Volvo service technician.



## Blind Spot Information System (BLIS) - option




*1 - BLIS camera, 2 - Indicator light, 3 - BLIS symbol*

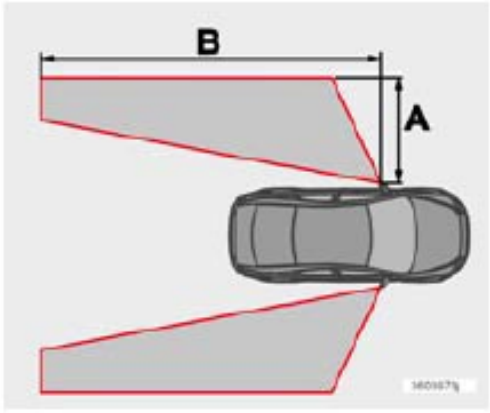
BLIS is an information system that indicates the presence of another vehicle moving in the same direction as your vehicle in the sideview mirror's "blind area."
The system is based on digital camera technology. The cameras (1) are located beneath the side-view mirrors.
When one (or both) of the cameras have detected a vehicle in the blind area (up to approximately 10 ft. (3 meters) from the side of your vehicle, and up to approximately 31 ft. (9.5 meters) behind the side-view mirror), see the illustration in the right column, the indicator light in the door panel (2) illuminates.

**WARNING!**

- BLIS is an information system, NOT a warning or safety system.
- BLIS does not eliminate the need for you to visually confirm the conditions around you, and the need for you to turn your head and shoulders to make sure that you can safely change lanes.
- As the driver, you have full responsibility for changing lanes in a safe manner.

The light will glow continuously to alert the driver of the vehicle in the blind area.

**NOTE:** The door panel indicator light illuminates on the side of the vehicle where the system has detected another vehicle. If your vehicle is passed on both sides at the same time, both lights will illuminate.
BLIS has an integrated function that alerts the driver if a fault should occur with the system. For example, if one or both of the system's cameras are obscured, a message (see the table on page 147) will appear in the information display in the instrument panel. If this occurs, clean the camera lenses. If necessary, the system can be temporarily switched off (for instructions, see page 147).




*Areas monitored by BLIS*
*Distance A = approx. 10 ft. (3 meters)*
*Distance B = approx. 31 ft. (9.5 meters)*

**When does BLIS function**
The system functions when your vehicle is moving at speeds above 6 mph (10 km/h).

**When you pass another vehicle:**
The system reacts when you pass another vehicle at a speed of up to 6 mph (10 km/h) faster than that vehicle.

**When you are passed by another vehicle:**
The system reacts if your vehicle is passed by another vehicle at a speed of up to 43 mph (70 km/h) faster than your vehicle.

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## Blind Spot Information System (BLIS) - option

**WARNING!**

- BLIS does not function in sharp curves.
- BLIS does not function when your vehicle is backing up.
- If you are towing a wide trailer, this may prevent the BLIS cameras from detecting other vehicles in adjacent lanes.

**How BLIS functions in daylight and darkness**
***Daylight***
BLIS reacts to the **shape** of surrounding vehicles. The system is designed to help detect motor vehicles such as cars, trucks, buses, motorcycles, etc.

***Darkness***
BLIS reacts to the **headlights** of surrounding vehicles. In order to be detected by BLIS, a vehicle in the blind area must have its headlights on. This means, for example, that the system will not detect a trailer without headlights that is being towed behind a car or truck.

**WARNING!**

- BLIS does not react to cyclists or mopeds.
- BLIS does not react to vehicles that are standing still.
- The function of the BLIS cameras may be affected by intense light, or when driving at night in areas where there are no external sources of light (e.g., street lights, other vehicles, etc.). In such cases, the system may react as if the cameras were obscured.

In both of the above mentioned conditions, a message will appear in the information display.
When driving in such conditions, the system can be temporarily switched off. See page 147 for instructions.
When the message is no longer displayed, BLIS will return to normal function.

- The BLIS cameras have the same limitation as the human eye. In other words, their "vision is impaired" by adverse weather conditions such as heavy snowfall, dense fog, etc.

**Cleaning the BLIS camera lenses**
In order to function optimally, the BLIS camera lenses must be kept clean. They can be wiped clean with a soft cloth or wet sponge.

**CAUTION!**

Clean the lenses carefully to avoid scratching.
The lenses are electrically heated to help melt ice or snow. If necessary, gently brush away snow from the lenses.

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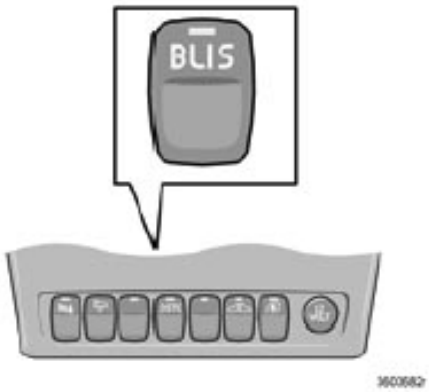
## Blind Spot Information System (BLIS) - option




**Switching BLIS on and off**
BLIS is automatically activated when the ignition is switched on. The indicator lights will provide confirmation by flashing 3 times.

- The system can be switched off by pressing the BLIS button in the center console (see the illustration above). The indicator light in the button goes out when the system is switched off, and a text message is displayed.
- BLIS can be switched on again by pressing the button. The indicator light in the button will illuminate and a new text message will be displayed. Press the READ button (see page 50) to erase the message.

| BLIS system messages | |
|---|---|
| **System status** | **Text in the display** |
| BLIS not functioning properly | BLIND-SPOT SYST SERVICE REQUIRED |
| Right camera obscured | BLIND-SPOT SYST R CAMERA BLOCKED |
| Left camera obscured | BLIND-SPOT SYST L CAMERA BLOCKED |
| Both cameras obscured | BLIND-SPOT SYST CAMERAS BLOCKED |
| BLIS system off | BLIND-SPOT INFO SYSTEM OFF |
| BLIS system on | BLIND-SPOT INFO SYSTEM ON |
| BLIS function reduced | BLIND-SPOT SYST FUNCTION REDUCED |

The messages listed above can only be displayed if the ignition key is in position II (or if the engine is running) and if BLIS is active (i.e. if the system has not been turned off by pressing the BLIS button).

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# 2007 VOLVO XC90

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### pg. 150 Wheels and tires

## General information

Your vehicle is equipped with tires according to the vehicle's tire information placard on the B-pillar (the structural member at the side of the vehicle, at the rear of the driver's door opening), or on the inside of the fuel filler door on Canadian models.

The tires have good road holding characteristics and offer good handling on dry and wet surfaces. It should be noted however that the tires have been developed to give these features on snow/ice-free surfaces.

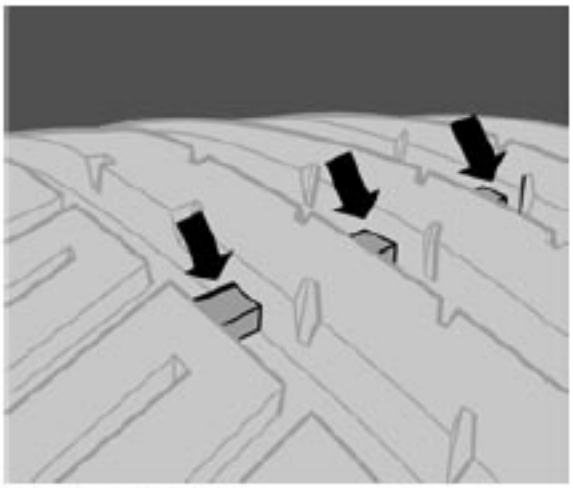
Certain models are equipped with "all-season" tires, which provide a somewhat higher degree of road holding on slippery surfaces than tires without the "all-season" rating. However, for optimum road

holding on icy or snow-covered roads, we recommend suitable winter tires on all four wheels.
When replacing tires, be sure that the new tires are the same size designation, type (radial) and preferably from the same manufacturer, on all four wheels. Otherwise there is a risk of altering the vehicle's roadholding and handling characteristics.

**Storing wheels and tires**
When storing complete wheels (tires mounted on rims), they should be suspended off the floor or placed on their sides on the floor.
Tires not mounted on rims should be stored on their sides or standing upright, but should not be suspended.

**CAUTION!**

Tires should preferably be stored in a cool, dry, dark place, and should never be stored in close proximity to solvents, gasoline, oils, etc.



*Tread wear indicator*

**Tread wear indicator**
The tires have wear indicator strips running across or parallel to the tread. The letters TWI are printed on the side of the tire. When approximately 1/16" (1.6 mm) is left on the tread, these strips become visible and indicate that the tire should be replaced. Tires with less than 1/16" (1.6 mm) tread offer very poor traction.
When replacing worn tires, it is recommended that the tire be identical in type (radial) and size as the one being replaced. Using a tire of the same make (manufacturer) will prevent alteration of the driving characteristics of the vehicle.

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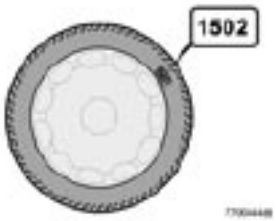
# General information

**WARNING!**

- The wheel and tire sizes for your Volvo are specified to meet stringent stability and handling requirements. Unapproved wheel/tire size combinations can negatively affect your vehicle's stability and handling. Approved tire sizes are shown in the Tire inflation pressure tables on page 154.
- Any damage caused by installation of unapproved wheel/tire size combinations will not be covered by your new vehicle warranty. Volvo assumes no responsibility for death, injury, or expenses that may result from such installations.




**New tires**

Remember that tires are perishable goods. As of 2000, the manufacturing week and year will be indicated with 4 digits (e.g. 1502 means that the tire illustrated was manufactured during week 15 of 2002).

**Tire age**

Tires degrade over time, even when they are not being used. It is recommended that tires generally be replaced after 6 years of normal service. Heat caused by hot climates, frequent high loading conditions or Ultra Violet (U.V) exposure can accelerate the aging process.
You should replace the spare tire when you replace the other road tires due to the aging of the spare.
A tire's age can be determined by the DOT stamp on the sidewall (see the illustration above).
A tire with e.g., visible cracks or discoloration should be replaced immediately.

**Improving tire economy:**

- Maintain correct tire pressure. See the tire pressure table on page 154.
- Drive smoothly: avoid fast starts, hard braking and tire screeching.
- Tire wear increases with speed.
- Correct front wheel alignment is very important.
- Unbalanced wheels impair tire economy and driving comfort.
- Tires must maintain the same direction of rotation throughout their lifetime.

When replacing tires, the tires with the most tread should be mounted on the rear wheels to reduce the chance of oversteer during hard braking.
Hitting curbs or potholes can damage the tires and/or wheels permanently.

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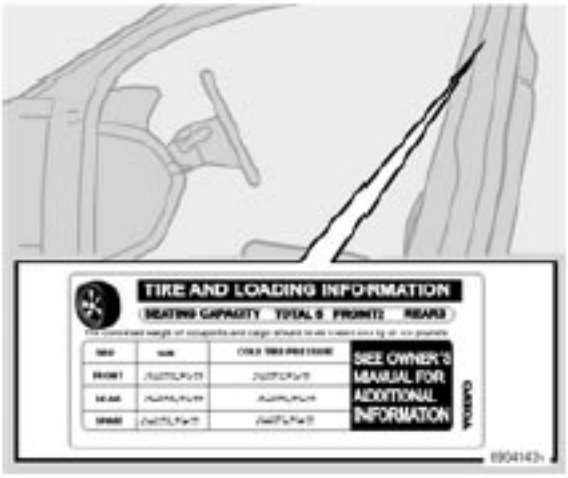
## General information



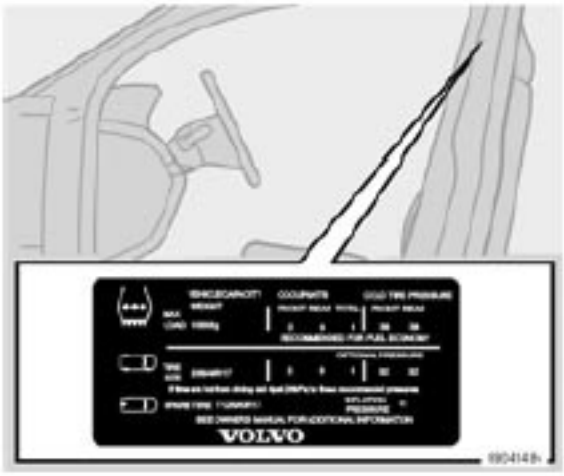

*Tire inflation placards on U.S. models*

**Tire inflation**

Check tire inflation pressure regularly.

Tables listing the recommended inflation pressure for your vehicle can be found on pages 154 and 155.

A tire inflation pressure placard is also located on the driver's side Bpillar (the structural member at the side of the vehicle, at the rear of the driver's door opening). This placard indicates the designation of the factory-mounted tires on your vehicle, as well as load limits and inflation pressure.




*Tire inflation placard on Canadian models*

**NOTE:** The placards shown indicate inflation pressure for the tires installed on the vehicle at the factory only.

- Use a tire gauge to check the tire inflation pressure, including the spare, at least once a month and before long trips. You are strongly urged to buy a reliable tire pressure gauge, as automatic service

station gauges may be inaccurate.
- Use the recommended cold inflation pressure for optimum tire performance and wear.
- Under-inflation or over-inflation may cause uneven treadwear patterns.

**WARNING!**

- Under-inflation is the most common cause of tire failure and may result in severe tire cracking, tread separation, or "blowout," with unexpected loss of vehicle control and increased risk of injury.
- Under-inflated tires reduce the load carrying capacity of your vehicle.

When weather temperature changes occur, tire inflation pressures also change. A 10- degree temperature drop causes a corresponding drop of 1 psi (7 kPa) in inflation pressure. Check your tire pressures frequently and adjust them to the proper pressure, which can be found on the vehicle's tire information placard or certification label.

**Checking tire pressure**
A certain amount of air seepage from the tires occurs naturally and tire pressure fluctuates with seasonal changes in temperature. Always check tire pressure regularly.

**Cold tires**
Inflation pressure should be checked when the tires are cold.

pg. 153 Wheels and tires

## General information

**The tires are considered to be cold when they have the same temperature as the surrounding (ambient) air.**
This temperature is normally reached after the vehicle has been parked for at least 3 hours.

After driving a distance of approximately 1 mile (1.6 km), the tires are considered to be hot. If you have to drive farther than this distance to pump your tire(s), check and record the tire pressure first and add the appropriate air pressure when you get to the pump.

If checking tire pressure when the tire is hot, never "bleed" or reduce air pressure. The tires are hot from driving and it is normal for pressures to increase above recommended cold pressures. A hot tire at or below recommended cold inflation pressure could be significantly under-inflated.

**To check inflation pressure:**
- Remove the cap from the valve on one tire, then firmly press the tire gauge onto the valve.

- Add air to reach the recommended air pressure.
- Replace the valve cap.
- Repeat this procedure for each tire, including the spare.
- Visually inspect the tires to make sure there are no nails or other objects embedded that could puncture the tire and cause an air leak.
- Check the sidewalls to make sure there are no gouges, cuts, bulges or other irregularities.

**NOTE:**

- If you overfill the tire, release air by pushing on the metal stem in the center of the valve. Then recheck the pressure with your tire gauge.
- Some spare tires require higher inflation pressure than the other tires. Consult the tire inflation table on page 154 or see the inflation pressure placard.

pg. 154 Wheels and tires

## Tire inflation pressure tables - U.S. models

The following tire pressures are recommended by Volvo for your vehicle. Refer to the tire inflation placard for information specific to the tires installed on your vehicle at the factory.

| **Cold tire pressures up to five persons** | | |
|---|---|---|
| Tire size | Front, psi (kPa) | Rear, psi (kPa) |
| **XC90**<br>235/65R17<br>235/60R18<br>255/50R19 | 36 (250) | 36 (250) |
| Temporary spare tire<br>T155/85R18 | 61 (420) | 61 (420) |

**Load ratings**

The load ratings in the tables above translate as follows:
91 = 1365 lbs (615 kg), 93 = 1433 lbs (650 kg), 99 = 1709 lbs (755 kg)

**Speed ratings**

The speed ratings in the tables translate as follows:
M = 81 mph (130 km/h), V= 149 mph (240 km/h), W= 168 mph (270 km/h)
See also page 159 for an explanation of the designations on the sidewall of the tire.

pg. 155 Wheels and tires

## Tire inflation pressure tables - Canadian models

The following tire pressures are recommended by Volvo for your vehicle. Refer to the tire inflation placard for information specific to the tires installed on your vehicle at the factory.

| Tire size | Cold tire pressures up to five persons psi (kPa) | | Optional pressure up to three persons psi (kPa) | |
|---|---|---|---|---|
| | Front | Rear | Front | Rear |
| 225/70R16<br>235/65R17<br>235/60R18<br>255/50R19 | 39 (270 | 39 (270) | 32 (220) | 32 (220) |
| Temporary spare tire T155/85R18 | 61 (420) | 61 (420) | 61 (420) | 61 (420) |

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## Tire Pressure Monitoring System (TPMS) - option

The tire pressure monitoring system uses sensors mounted in the tire valves to check inflation pressure levels. When the vehicle is moving at a speed of approximately 20 mph (30 km/h) or faster, these sensors transmit inflation pressure data to a receiver located in the vehicle.

**USA - FCC ID: MRXTG315AM04**
This device complies with part 15 of the FCC rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

When low inflation pressure is detected, TPMS will light up the tire pressure warning light ( ) (also referred to as a telltale) in the instrument panel, and will display a message in the text window. The wording of this message is determined by the degree of inflation pressure loss.

**NOTE:** If a fault occurs in TPMS, the tire pressure warning light will flash for approximately 1 minute and TIRE PRESS SYST SERVICE REQUIRED will be displayed.

Each tire, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended by the vehicle manufacturer on the vehicle placard or tire inflation pressure label. (If your vehicle has tires of a different size than the size indicated on the vehicle placard or tire inflation pressure label, you should determine the proper tire inflation pressure for those tires.)

As an added safety feature, your vehicle has been equipped with a tire pressure monitoring system (TPMS) that illuminates a low tire pressure telltale when one or more of your tires is significantly under-inflated. Accordingly, when the low tire pressure telltale illuminates, you should stop and check your tires as soon as possible, and inflate them to the proper pressure. Driving on a significantly under-inflated tire causes the tire to overheat and can lead to tire failure. Under-inflation also reduces fuel efficiency and tire tread life, and may affect the vehicle's handling and stopping ability.

Please note that the TPMS is not a substitute for proper tire maintenance, and it is the driver's responsibility to maintain correct tire pressure, even if under-inflation has not reached the level to trigger illumination of the TPMS low tire pressure telltale.

Your vehicle has also been equipped with a TPMS malfunction indicator to indicate when the system is not operating properly. The TPMS malfunction indicator is combined with the low tire pressure telltale. When the system detects a malfunction, the telltale will flash for approximately one minute and then remain continuously illuminated. This sequence will continue upon subsequent vehicle start-ups as long as the malfunction exists. When the malfunction indicator is illuminated, the system may not be able to detect or signal low tire pressure as intended. TPMS malfunctions may occur for a variety of reasons, including the installation of replacement or alternate tires or wheels on the vehicle that prevent the TPMS from functioning properly. Always check the TPMS malfunction telltale after replacing one or more tires or wheels on your vehicle to ensure that the replacement or alternate tires and wheels allow the TPMS to continue to function properly.

**NOTE:**

- TPMS indicates low tire pressure but does not replace normal tire maintenance. For information on correct tire pressure, please refer to the table on page 154, or consult your Volvo retailer.

**Erasing warning messages**

When a low tire pressure warning message has been displayed, and the tire pressure warning light has come on:

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## Tire Pressure Monitoring System (TPMS) - option

- Use a tire pressure gauge to check the inflation pressure of all four tires.
- Re-inflate the tire(s) to the correct pressure (consult the tire pressure placard or the table on page 154).

- Drive the vehicle for several minutes at a speed of 20 mph (30 km/h) or faster.

This will erase the warning text and the warning light will go out.

**WARNING!**

Incorrect inflation pressure could lead to tire failure, resulting in a loss of control of the vehicle.

**Changing wheels with TPMS**

Please note the following when changing or replacing the factory installed TPMS wheels/ tires on the vehicle:

- Only the factory-mounted wheels are equipped with TPMS sensors in the valves.
- If the vehicle is equipped with a temporary spare tire, this tire does not have a TPMS sensor.
- If wheels without TPMS sensors are mounted on the vehicle, TIRE PRESS SYST SERVICE REQUIRED will be displayed each time the vehicle is driven above 25 mph (40 km/h) for 10 minutes or more.
- Once TPMS sensors are properly installed, the warning message should not reappear.
- Volvo recommends that TPMS sensors be fitted on all wheels used on the vehicle. Volvo does not recommend moving sensors back and forth between sets of wheels.

**CAUTION!**

When inflating tires with TPMS valves, press the pump's mouthpiece straight onto the valve to help avoid bending or otherwise damaging the valve.

**Adjusting (recalibrating) TPMS[1]**

TPMS can be adjusted, or recalibrated, in order to help adapt the system to different inflation pressures, for example when transporting heavy loads. To do so:

- Switch off the engine.
- Inflate the tires to the desired pressure.
- Turn the ignition key to position I or II.
- Turn the thumbwheel on the left steering wheel lever until the text TIRE PRESSURE CALIBRATION is displayed.
- Press in and hold the Reset button (see the illustration on page 50) until TIRE PRESSURE CALIBRATED is displayed. This completes the procedure.

**NOTE:** TPMS should be recalibrated each time tire inflation pressure is changed.

1. Canadian models only

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## Tire Pressure Monitoring System (TPMS) - option

**Deactivating (turning off) TPMS[1]**
The system can be switched off if necessary, for example if winter tires without TPMS sensors are mounted on the vehicle. To do so:
- Switch off the engine.
- Turn the ignition key to position I or II.
- Turn the thumbwheel on the left steering wheel lever until the text TIRE PRESS SYST ON is displayed.
- Press in and hold the Reset button (see the illustration on page 50) until TIRE PRESS SYST OFF is displayed.

Repeat steps 1-4 to reactivate the system.

**NOTE:** If TPMS is switched off, it will remain off until it is reactivated according to the steps described above. The text TIRE PRESS SYST ON will then be displayed.

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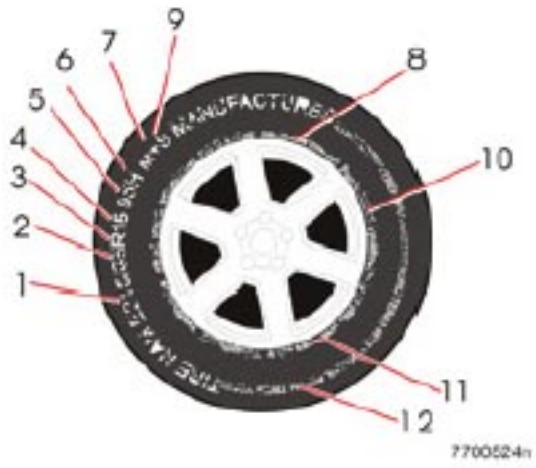
## Tire designations




Federal law mandates that tire manufacturers place standardized information on the sidewall of all tires (see the illustration).
The following information is listed on the tire sidewall:
The tire designation (the following figures are examples of a tire designation):
1. 215: the width of the tire (in millimeters) from sidewall edge to sidewall edge. The larger the number,

the wider the tire.

2. 65: The ratio of the tire's height to its width.

3. R: Radial tire.

4. 15: The diameter of the wheel rim (in inches).

5. 95: The tire's load index. In this example, a load index of 95 equals a maximum load of 1521 lbs (690 kg).

6. H: The tire's speed rating, or the maximum speed at which the tire is designed to be driven for extended periods of time, carrying a permissible load for the vehicle, and with correct inflation pressure. For example, H indicates a speed rating of 130 mph (210 km/h).

**NOTE:** This information may not appear on the tire because it is not required by law.

7. M+S or M/S = Mud and Snow, AT = All Terrain, AS = All Season

8. U.S. DOT Tire Identification Number (TIN): This begins with the letters "DOT" and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, the next two are the tire size code and the last four numbers represent the week and year the tire was built. For example, the numbers 317 mean the 31st week of 1997. After 2000 the numbers go to four digits. For example, 2501 means the 25th week of 2001. The numbers in between are marketing codes used at the manufacturer's discretion. This information helps a tire manufacturer identify a tire for safety recall purposes.

9. Tire Ply Composition and Material Used: Indicates the number of plies indicates or the number of layers of rubber-coated fabric in the tire tread and sidewall. Tire manufacturers also must indicate the ply materials in the tire and the sidewall, which include steel, nylon, polyester, and others.

10. Maximum Load: Indicates the maximum load in pounds and kilograms that can be carried by the tire. Refer to the vehicle's tire information placard or the safety certification label, located on the B-Pillar or the driver's door or on the inside of the fuel filler door on Canadian models, for the correct tire pressure for your vehicle.

11. Treadwear, Traction, and Temperature grades: See page 163 for more information.

12. Maximum permissible inflation pressure: the greatest amount of air pressure that should ever be put in the tire. This limit is set by the tire manufacturer.

Tire suppliers may have additional markings, notes or warnings such as standard load, radial tubeless, etc.

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## Glossary of tire terminology

- **Tire information placard**: A placard showing the OE (Original Equipment) tire sizes, recommended inflation pressure, and the maximum weight the vehicle can carry.
- **Tire Identification Number (TIN)**: A number on the sidewall of each tire providing information about the tire brand and manufacturing plant, tire size and date of manufacturer.
- **Inflation pressure**: A measure of the amount of air in a tire.
- **Standard load**: A class of P-metric or Metric tires designed to carry a maximum load at 35 psi [37 psi (2.5 bar) for Metric tires]. Increasing the inflation pressure beyond this pressure will not increase the tires load carrying capability.
- **Extra load**: A class of P-metric or Metric tires designed to carry a heavier maximum load at 41 psi [43 psi (2.9 bar) for Metric tires]. Increasing the inflation pressure beyond this pressure will not increase the tires load carrying capability.
- **kPa**: Kilopascal, a metric unit of air pressure.
- **PSI**: Pounds per square inch, a standard unit of air pressure.
- **B-pillar**: The structural member at the side of the vehicle behind the front door.
- **Bead area of the tire**: Area of the tire next to the rim.
- **Sidewall of the tire**: Area between the bead area and the tread.
- **Tread area of the tire**: Area of the perimeter of the tire that contacts the road when mounted on the vehicle.
- **Rim**: The metal support (wheel) for a tire or a tire and tube assembly upon which the tire beads are seated.
- **Maximum load rating**: a figure indicating the maximum load in pounds and kilograms that can be carried by the tire. This rating is established by the tire manufacturer.
- **Maximum permissible inflation pressure**: the greatest amount of air pressure that should ever be put in the tire. This limit is set by the tire manufacturer.
- **Recommended tire inflation pressure**: inflation pressure, established by Volvo, which is based on the type of tires that are mounted on a vehicle at the factory. This inflation pressure is affected by the number of occupants in the vehicle, the amount of cargo, and the speed at which the vehicle will be driven for a prolonged period. This information can be found on the tire inflation placard(s) located on the driver's side B-pillar or on the inside of the fuel filler door on Canadian models, and in the tire inflation table in this chapter.
- **Cold tires**: The tires are considered to be cold when they have the same temperature as the surrounding (ambient) air. This temperature is normally reached after the vehicle has been parked for at least 3 hours.

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## Vehicle loading

Properly loading your vehicle will provide maximum return of vehicle design performance.
Before loading your vehicle, familiarize yourself with the following terms for determining your vehicle's weight ratings, with or without a trailer, from the vehicle's Federal/ Canadian Motor Vehicle Safety Standards (FMVSS/CMVSS) label, and the vehicle's tire information placard.

**Curb weight**
The weight of the vehicle including a full tank of fuel and all standard equipment. It does not include passengers, cargo, or optional equipment.

**Capacity weight**
All weight added to the curb weight, including cargo and optional equipment. When towing, trailer hitch tongue load is also part of cargo weight.

**NOTE:** For trailer towing information, please refer to the section "Towing a trailer" on page 137.

**Permissible axle weight**
The maximum allowable weight that can be carried by a single axle (front or rear). These numbers are shown on the Federal/Canadian Motor Vehicle Safety Standards (FMVSS/ CMVSS) label. The total load on each axle must never exceed its maximum permissible weight.

**Gross vehicle weight (GVW)**
The vehicle's curb weight + cargo + passengers.

**NOTE:**
- The location of the various labels in your vehicle can be found on page 208.
- A table listing important weight limits for your vehicle can be found on page 209.

**Steps for Determining Correct Load Limit**
- Locate the statement "the combined weight of occupants and cargo should never exceed XXX pounds" on your vehicle's placard.
- Determine the combined weight of the driver and passengers that will be riding in your vehicle.
- Subtract the combined weight of the driver and passengers from XXX kilograms or XXX pounds.
- The resulting figure equals the available amount of cargo and luggage load capacity. For example, if the "XXX" amount equals 1400 lbs. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo and luggage load capacity is 650 lbs. (1400- 750 (5 x 150) = 650 lbs.)
- Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity calculated in Step 4.
- If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult this manual[1] to determine how this reduces the available cargo and luggage load capacity of your vehicle.

1. See "Towing a trailer" on page 137.

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## Vehicle loading

**WARNING!**

- Exceeding the permissible axle weight, gross vehicle weight, or any other weight rating limits can cause tire overheating resulting in permanent deformation or catastrophic failure.
- Do not use replacement tires with lower load carrying capacities than the tires that were original equipment on the vehicle because this will lower the vehicle's GVW rating. Replacement tires with a higher limit than the originals do not increase the vehicle's GVW rating limitations.

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## Uniform Tire Quality Grading

**ALL PASSENGER VEHICLE TIRES MUST CONFORM TO FEDERAL SAFETY REQUIREMENTS IN ADDITION TO THESE GRADES**

**Quality grades can be found, where applicable, on the tire sidewall between the tread shoulder and maximum section width. For example:**
**Treadwear 200 Traction AA Temperature A**

**TREADWEAR**
The treadwear grade is a comparative rating based on the wear rate of the tire when tested under controlled conditions on a specified government test course. For example, a tire graded 150 would wear one and one half (1 1/2) times as well on the government course as a tire graded 100. The relative performance of tires depends upon the actual conditions of their use, however, and many depart significantly from the norm due to variation in driving habits, maintenance practices and differences in road characteristics and climate.

**TRACTION**
The traction grades, from highest to lowest, are AA, A, B, and C, as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tire marked C may have poor traction performance.

**WARNING!**

The traction grade assigned to this tire is based on braking (straight-ahead) traction tests and is not a measure of cornering (turning) traction.

**TEMPERATURE**

The temperature grades are AA (the highest), A, B, and C, representing the tire's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the material of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure. The grade C corresponds to a minimum level of performance that all passenger vehicle tires must meet under the Federal Motor Safety Standard No. 109. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

**WARNING!**

The temperature grade for this tire is established for a tire that is properly inflated and not overloaded. Excessive speed, under-inflation, or excessive loading, either separately or in combination, can cause heat buildup and tire failure.

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## Snow chains, snow tires, studded tires

**Snow chains**

Snow chains can be used on your Volvo with the following restrictions:

- Snow chains should be installed on front wheels only. Use only Volvo approved snow chains.
- If accessory, aftermarket or "custom" tires and wheels are installed and are of a size different than the original tires and wheels, chains in some cases CANNOT be used. Sufficient clearances between chains and brakes, suspension and body components must be maintained.
- Some strap-on type chains will interfere with brake components and therefore CANNOT be used.
- All Wheel Drive models: Snow chains should only be installed on the front wheels. Only chains adapted for AWD models should be used.

Consult your Volvo retailer for additional snow chain information.

**CAUTION!**

- Check local regulations regarding the use of snow chains before installing.
- Always follow the chain manufacturer's installation instructions carefully. Install chains as tightly as possible and retighten periodically.
- Never exceed the chain manufacturer's specified maximum speed limit. (Under no circumstances should you exceed 31 mph (50 km/h)).
- Avoid bumps, holes or sharp turns when driving with snow chains.
- The handling of the vehicle can be adversely affected when driving with chains. Avoid fast or sharp turns as well as locked wheel braking.

**Snow tires, studded tires[1]**

**Tires for winter use:**

- Owners who live in or regularly commute through areas with sustained periods of snow or icy driving conditions are strongly advised to fit suitable winter tires to help retain the highest degree of traction.
- It is important to install winter tires on all four wheels to help retain traction during cornering, braking, and accelerating. Failure to do so could reduce traction to an unsafe level or adversely affect handling.
- Do not mix tires of different design as this could also negatively affect overall tire road grip.
- Winter tires wear more quickly on dry roads in warm weather. They should be removed when the winter driving season has ended.
- Studded tires should be run-in 300-600 miles (500-1000 km) during which the vehicle should be driven as smoothly as possible to give the studs the opportunity to seat properly in the tires. The tires should have the same rotational direction throughout their entire lifetime.

**NOTE:** Please consult state or provincial regulations restricting the use of studded winter tires before installing such tires.

1. Where permitted

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## Temporary spare

The spare tire in your vehicle is called a "Temporary Spare".
Recommended tire pressure (see the placard on the B-pillar or on the fuel filler door) should be maintained irrespective of which position on the vehicle the temporary spare tire is used.
In the event of damage to this tire, a new one can be purchased from your Volvo retailer.

**WARNING!**

Current legislation prohibits the use of the "Temporary Spare" tire other than as a temporary replacement for a punctured tire. It must be replaced as soon as possible by a standard tire. Road holding and handling may be affected with the "Temporary Spare" in use. Do not exceed 50 mph (80 km/h). Do not drive farther than 50 miles (80 km) on a temporary spare tire.

**CAUTION!**

The vehicle must not be driven with wheels of different dimensions or with a spare tire other than the one that came with the vehicle. The use of different size wheels can seriously damage your vehicle's transmission.

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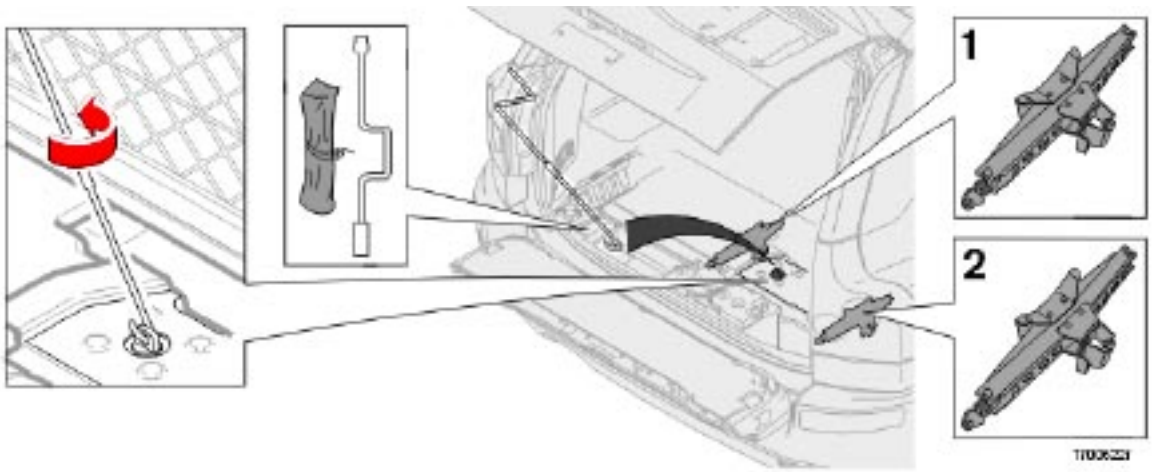
## Changing wheels




*1-Jack location in 7-seat models*
*2-Jack location in 5-seat models*

**Changing wheels**
**Location of jack, five-seat models**
The jack is located to the right under the rear hatch in the cargo area floor. Lift this hatch and release the retaining strap to lift out the jack.
The rear section of the jack's crank and the tool bag are stowed to the left under the hatch. The front section of the crank is stored in the tool bag. The tool bag also contains a tool for removing certain optional wheel covers. Consult your Volvo retailer.

**NOTE:** The rear section of the crank is enclosed in a protective sleeve that should be slid off before the crank is used. We recommend reinserting the crank into this sleeve before the crank is stowed.
If the vehicle is equipped with the optional grocery bag holder: Fold up the rear section of the cargo area floor, disconnect the grocery bag holder's retaining cords and fold up the lower section of the floor to access the tool bag.

**Location of jack, seven-seat models**
The jack is located in the center under the rear hatch in the cargo area floor. Lift this hatch and release the retaining strap to slide out the jack.
The rear section of the jack's crank and the tool bag are stowed to the left under the hatch. The front section of the crank is stored in the tool bag.

**NOTE:** The rear section of the crank is enclosed in a protective sleeve that should be slid off before the crank is used. We recommend reinserting the crank into this sleeve before the crank is stowed.
If the vehicle is equipped with the optional grocery bag holder: Fold up the rear section of the cargo area floor, disconnect the grocery bag holder's retaining cords and fold up the lower section of the floor.

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## Changing wheels

**CAUTION!**

**Seven-seat models**: Do not store objects in the area for the rear seat cushions (when the backrests are to be folded down). This could damage the cushions.

**Lowering the spare wheel**
The spare wheel is located under the floor of the rear cargo compartment. It can be lowered using the crank (see previous page for location).

**WARNING!**

When raising or lowering the spare wheel, please keep in mind that components in the exhaust system may be very hot.

**To lower the spare wheel:**
- Fold down the lower section of the tailgate.
- Fold up the rear section of the floor in the cargo compartment.

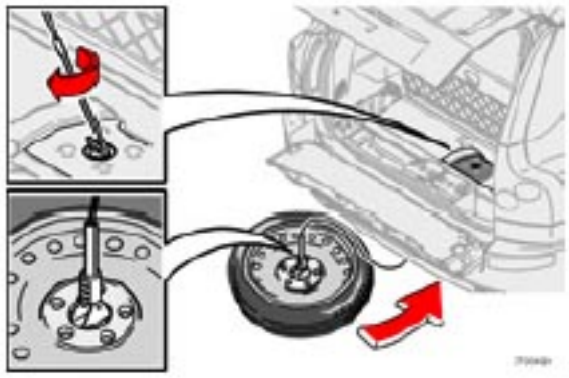
- Connect the two sections of the jack's crank.
- Insert the hooked end of the crank in the spare wheel retaining attachment (see the illustration below).
- Lower the spare wheel under the vehicle by turning the crank counterclockwise until it is not possible to turn it further.
- Pivot the toggle at the end of the cable 90 degrees to release it from the spare wheel
- Crank up the cable again by turning the crank clockwise.

**CAUTION!**

When the spare wheel is mounted on the vehicle, the retaining cable could damage the underside of the vehicle if it is not retracted.

- Place the wheel with the flat tire in the vehicle's cargo compartment.

**NOTE:** The space under the vehicle is designed to hold the special spare wheel only. Other full-size wheels will not fit in this compartment.



**Returning the spare wheel to the storage compartment**
- Use the crank (turn it counterclockwise) to lower the spare wheel's retaining cable.
- Pass the toggle at the end of the cable through the center hole in the spare wheel. Pivot the toggle 90 degrees so that when raised, the wheel will rest on the toggle.
- Retract the retaining cable slightly by slowly turning the crank clockwise several times.
- Position the wheel so that it is not obstructed by components in the exhaust system.

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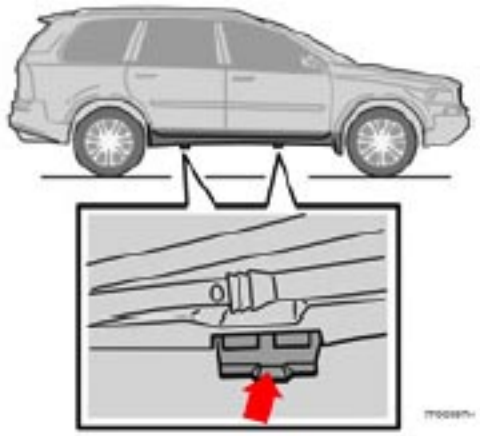
## Changing wheels

- Continue to raise the wheel by turning the crank clockwise. Raise the wheel a little bit at a time and

guide it around the rear axle until it is securely seated in the storage area.
- When it is no longer possible to turn the crank any further, check that the spare wheel is securely in position in the storage compartment.



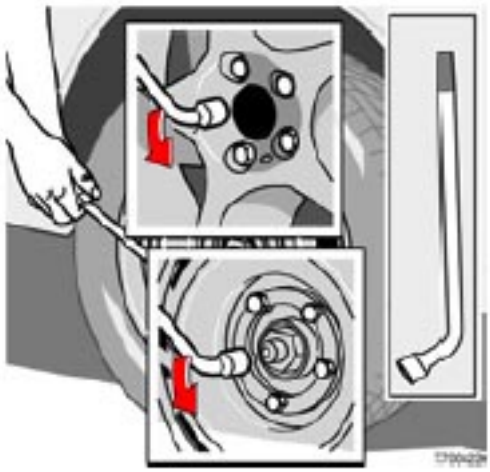
*Jack attachment points*

**Jack attachments**

There are two attachment points for the jack on each side of the vehicle. These attachment points are under the center of each door.

**WARNING!**

There is an attachment point on each side of the vehicle located under the pillars between the front and rear doors. This point is used during the production process only, and is NOT intended for attaching the jack.



**WARNING!**

The undersides of accessory running boards are not intended for attaching the jack.

**Changing a wheel**
- Park the vehicle on a firm, level, non-slippery surface.
- Engage the parking brake and put the gear selector in the Park position.
- Loosen the wheel bolts by exerting downward pressure on the lug wrench.
- Remove the wheel cap (where applicable) using the lug wrench in the tool bag.

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## Changing wheels

- With the wheels still on the ground, use the lug wrench to loosen the wheel bolts 1/2 - 1 turn. Turn the bolts counterclockwise to loosen the bolts.

**CAUTION!**

- The vehicle must not be driven with wheels of different dimensions or with a spare tire other than the one that came with the vehicle. The use of different size wheels can seriously damage your vehicle's transmission.
- Correct tightening torque on wheel bolts must be observed.
- The wheel bolts should never be greased or lubricated.
- Extended, chromed wheel bolts must not be used with steel rims, as they make it impossible to fit the hub caps.

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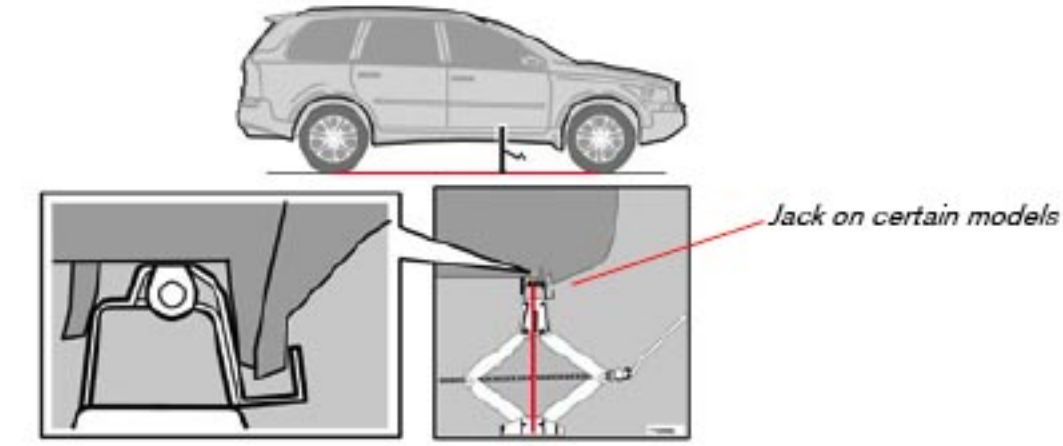
## Changing wheels




*Attaching the jack*

- Place the jack on the ground, under one of the attachment points (see the illustration on the previous page) and crank while simultaneously guiding the jack's attachment bracket onto the attachment point (see illustration above) The base of the jack must be flat on a level, firm, non-slippery surface. Before raising the vehicle, check that the jack is still correctly positioned in the attachment.
- Raise the vehicle until the wheel to be changed is lifted off the ground.
- Unscrew the wheel bolts completely and carefully remove the wheel so as not to damage the threads on the studs.

**NOTE:** To avoid excessive wear and the necessity of rebalancing, mark and reinstall wheels in the same location and position as before removal. To lessen the chance of imbalance, each wheel hub is equipped with a guide stud to ensure that a removed wheel can be reinstalled in its original position (as when changing over to winter tires/wheels).

**Installing the wheel**
- Clean the contact surfaces on the wheel and hub.
- Lift the wheel and place it on the hub.
- Install the wheel bolts and tighten hand-tight. Using the lug wrench, tighten crosswise until all bolts are snug.
- Lower the vehicle to the ground and alternately tighten the bolts crosswise to 102 ft. lbs. (140 Nm).
- Install the wheel cap (where applicable).

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## Changing wheels

**WARNING!**

- The jack must correctly engage the bar in the jack attachment. The vehicle's weight must not rest on the jack attachment. See illustration "Attaching the jack" on the previous page.
- Be sure the jack is on a firm, level, non-slippery surface.
- Never allow any part of your body to be extended under a vehicle supported by a jack.
- Use the jack intended for the vehicle when replacing a wheel. For any other job, use stands to support the side of the vehicle being worked on.
- Apply the parking brake and put the gear selector in the (**P**)ark position.
- Block the wheels standing on the ground, use rigid wooden blocks or large stones.
- The jack should be kept well-greased.

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## pg. 174 Vehicle care

## Washing and cleaning the vehicle

### Washing the vehicle

- The vehicle should be washed at regular intervals since dirt, dust, insects and tar spots adhere to the paint and may cause damage. It is particularly important to wash the vehicle frequently in the wintertime to prevent corrosion, when salt has been used on the roads.
- When washing the vehicle, do not expose it to direct sunlight. Use lukewarm water to soften the dirt before you wash with a sponge, and plenty of water, to avoid scratching.
- Bird droppings: Remove from paintwork as soon as possible. Otherwise the finish may be permanently damaged.
- A detergent can be used to facilitate the softening of dirt and oil.
- A water-soluble grease solvent may be used in cases of sticky dirt. However, use a wash place equipped with a drainage separator.

**CAUTION!**

Chromed wheels: Clean chrome-plated wheels using the same detergents used for the body of the vehicle. Aggressive wheel-cleaning agents can permanently stain chrome-plated wheels.

- Dry the vehicle with a clean chamois and remember to clean the drain holes in the doors and rocker panels.

- Tar spots can be removed with kerosene or tar remover after the vehicle has been washed.
- A stiff-bristle brush and lukewarm soapy water can be used to clean the wiper blades. Frequent cleaning improves visibility considerably.
- Wash off the dirt from the underside (wheel housings, fenders, etc.).
- In areas of high industrial fallout, more frequent washing is recommended.
- After cleaning the engine, the spark plug wells should be inspected for water and blown dry if necessary.

**Suitable detergents**
Special vehicle washing detergents should be used. A suitable mixture is about 2.5 fl. oz. (8.5 cl) of detergent to 2.6 US gal. (10 liters) of warm water. After washing with a detergent the vehicle should be well rinsed with clean water.

**Exterior plastic components**
Cleaning exterior plastic components should be done with a cleaning agent specially designed for this purpose. Solvents or stain removers should not be used. Consult your Volvo retailer.

**NOTE:** When washing the vehicle, remember to remove dirt from the drain holes in the doors and sills.

**CAUTION!**

During high pressure washing, the spray mouthpiece must never be closer to the vehicle than 13" (30 cm). Do not spray into the locks.
When washing or steam cleaning the engine, avoid spraying water or steam directly on the electrical components or toward the rear side of the engine.

**Special moonroof cautions:**

- Always close the moonroof and sun shade before washing your vehicle.
- Never use abrasive cleaning agents on the moonroof.
- Never use wax on the rubber seals around the moonroof.

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## Washing and cleaning the vehicle

**WARNING!**

- When the vehicle is driven immediately after being washed, apply the brakes several times in order to remove any moisture from the brake linings.
- Engine cleaning agents should not be used when the engine is warm. This constitutes a fire risk.

**Automatic washing - simple and quick**

- We do NOT recommend washing your vehicle in an automatic wash during the first six months (because the paint will not have hardened sufficiently).
- An automatic wash is a simple and quick way to clean your vehicle, but it is worth remembering that it may not be as thorough as when you yourself go over the vehicle with sponge and water. Keeping the underbody clean is most important, especially in the winter. Some automatic washers do not have facilities for washing the underbody.
- Before driving into an automatic car wash, make sure that side view mirrors, auxiliary lamps, etc, are secure, and that any antenna(s) are retracted or removed. Otherwise there is risk of the machine dislodging them.

**Exterior lighting**

Condensation may form temporarily on the inside of the lenses of exterior lights such as headlights, fog lights, or tail lights. This is normal and the lights are designed to withstand moisture. Normally, condensation will dissipate after the lights have been on for a short time.

**Polishing and waxing**

- Normally, polishing is not required during the first year after delivery, however, waxing may be beneficial.
- Before applying polish or wax the vehicle must be washed and dried. Tar spots can be removed with kerosene or tar remover. Difficult spots may require a fine rubbing compound.
- After polishing use liquid or paste wax.
- Several commercially available products contain both polish and wax.
- Waxing alone does not substitute for polishing a dull surface.
- A wide range of polymer-based car waxes can be purchased today. These waxes are easy to use and produce a long-lasting, high-gloss finish that protects the bodywork against oxidation, road dirt and fading.
- Do not polish or wax your vehicle in direct sunlight (the surface of the vehicle should not be warmer than 113° F (45° C).

**CAUTION!**

Volvo does not recommend the use of long-life or durable paint protection coatings, some of which may claim to prevent pitting, fading, oxidation, etc. These coatings have not been tested by Volvo for compatibility with your vehicle's clear coat. Some of them may cause the clear coat to soften, crack, or cloud. Damage caused by application of paint protection coatings may not be covered under your vehicle's paint warranty.

**Side windows with the water repellent glass coating**

- Do not apply wax, degreasing agents, etc to this glass. This could damage the coating.
- Clean the glass surface with care to avoid scratching.
- Use only suitable plastic scrapers to remove ice or snow from the windows.

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## Washing and cleaning the vehicle

**NOTE:** The water repellent coating is subject to natural wear.

- In order to maintain the coating's water repellent characteristics, it should be treated with a special compound that is available at your Volvo retailer.
- This treatment should be carried out for the first time after three years, and thereafter once a year.

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## Washing and cleaning the vehicle

**Cleaning the upholstery**

**Fabric**

Clean with soapy water or a detergent. For more difficult spots caused by oil, ice cream, shoe polish, grease, etc., use a clothing/ fabric stain remover. Consult your Volvo retailer.

**Interior plastic components**

Cleaning interior plastic components should be done with a cleaning agent specially designed for this purpose. Consult your Volvo retailer.

**Alcantera™ suede-like material**

Suede-like upholstery can be cleaned with a soft cloth and mild soap solution.

**Leather care**

Volvo's leather upholstery is manufactured with a protectant to repel soiling. Over time, sunlight, grease and dirt can break down the protection. Staining, cracking, scuffing, and fading can result.

Volvo offers an easy-to-use, non-greasy leather care kit formulated to clean and beautify your vehicle's leather, and to renew the protective qualities of its finish. The cleaner removes dirt and oil buildup. The light cream protectant restores a barrier against soil and sunlight.

Volvo also offers a special leather softener that should be applied after the cleaner and protectant. It leaves leather soft and smooth, and reduces friction between leather and other finishes in the vehicle.

Volvo recommends cleaning, protecting and conditioning your vehicle's leather two to four times a year. Ask your Volvo retailer about Leather Care Kit 951 0251 and Leather Softener 943 7429.

**CAUTION!**

- Under no circumstances should gasoline, naphtha or similar cleaning agents be used on the plastic or the leather since these can cause damage.
- Take extra care when removing stains such as ink or lipstick since the coloring can spread.
- Use solvents sparingly. Too much solvent can damage the seat padding.
- Start from the outside of the stain and work toward the center.
- Sharp objects (e.g. pencils or pens in a pocket) or velcro fasteners on clothing may damage the textile upholstery.
- Clothing that is not colorfast, such as new jeans or suede garments, may stain the upholstery.

**Cleaning the seat belts**
Clean only with lukewarm water and a mild soap solution.

**Cleaning floor mats**
The floor mats should be vacuumed or brushed clean regularly, especially during winter when they should be taken out for drying. Spots on textile mats can be removed with a mild detergent.

pg. 178 Vehicle care

## Paint touch up

*Model plate with paint color code*[1]

Paint damage requires immediate attention to avoid rusting. Make it a habit to check the finish regularly - when washing the vehicle for instance. Touch-up if necessary.
Paint repairs require special equipment and skill. Contact your Volvo retailer for any extensive damage. Minor scratches can be repaired by using Volvo touch-up paint.

**Color code**
Make sure you have the right color. The color code number is on the model plate in the engine compartment.

**Minor stone chips and scratches**
Material:
- Primer - can
- Paint - touch-up pen
- Brush
- Masking tape
- If the stone chip has not gone down to the bare metal and an undamaged color coat remains, you can add paint immediately after removing dirt.

**NOTE:** When touching up the vehicle, it should be clean and dry. The surface temperature should be above 60° F (15° C).

**Minor scratches on the surface**
If the stone chip has not penetrated down to the metal and an undamaged layer of paint remains, the touch-up paint can be applied as soon as the spot has been cleaned.

**Deep scratches**

- Place a strip of masking tape over the damaged surface. Pull the tape off so that any loose flakes of paint adhere to it.
- Thoroughly mix the primer and apply it with a small brush.

When the primer surface is dry, the paint can be applied using a brush. Mix the paint thoroughly; apply several thin paint coats and let dry after each application.

- If there is a longer scratch, you may want to protect surrounding paint by masking it off.

1. The model plate is located on the passenger's side center door pillar.

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# 2007
# VOLVO
# XC90

## Maintenance

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## pg. 180 Maintenance

## Volvo service

**Maintenance service**

Periodic maintenance will help keep your vehicle running well. Your Warranty and Service Records Information booklet provides a comprehensive maintenance schedule up to 150,000 miles (240,000 km) of vehicle service. This maintenance program contains inspections and services necessary for the proper function of your vehicle, and includes components that affect vehicle emissions. The maintenance services contain several checks that require special instruments and tools and therefore must be performed by a qualified technician. Volvo advises you to follow the service program outlined in this booklet. To keep your Volvo in top condition, specify time-tested and proven Genuine Volvo Parts and

Accessories.

**The Federal Clean Air Act - U.S.**
The Federal Clean Air Act requires vehicle manufacturers to furnish written instructions to the ultimate purchaser to assure the proper servicing and function of the components that control emissions. These services, which are listed in the "Warranty and Service Records Information booklet," are not covered by the warranty. You will be required to pay for labor and material used.

**Maintenance services**
Your Volvo passed several major inspections before it was delivered to you, in accordance with Volvo specifications. The maintenance services outlined in the Warranty and Service Records Information booklet, many of which will positively affect your vehicle's emissions, should be performed as indicated. It is recommended that receipts for vehicle emission services be retained in case questions arise concerning maintenance. Inspection and service should also be performed anytime a malfunction is observed or suspected.

**Vehicle Event Data (Black Box)**
Your vehicle's driving and safety systems employ computers that monitor, and share with each other, information about your vehicle's operation. One or more of these computers may store what they monitor, either during normal vehicle operation or in a crash or near-crash event. Stored information may be read and used by:

- Volvo Car Corporation
- service and repair facilities
- law enforcement or government agencies
- others who may assert a legal right to know, or who obtain your consent to know such information.

**Applicable warranties**
In accordance with applicable U.S. and Canadian regulations, the following list of warranties is provided.
- New Car Limited Warranty
- Parts and Accessories Limited Warranty
- Corrosion Protection Limited Warranty
- Seat Belt and Supplemental Restraint Systems Limited Warranty
- Emission Design and Defect Warranty
- Emission Performance Warranty

These are the Federal warranties; other warranties are provided as required by state/ provincial law. Refer to your separate Warranty and Service Records Information booklet for detailed information concerning each of the warranties.

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## Maintaining your car

**Owner maintenance**
Periodic maintenance requirements and intervals are described in your vehicle's Warranty and Service Records Information booklet.
The following points can be carried out between the normally scheduled maintenance services.

**Each time the vehicle is refueled:**
- Check the engine oil level
- Clean the windshield, windshield wipers, headlights, and tail lights

**Monthly:**
- Check cold tire pressure in all tires. Inspect the tires for wear.
- Check that engine coolant and other fluid levels are between the indicated "min" and "max" markings.
- Clean interior glass surfaces with a glass cleaner and soft paper towels.
- Wipe driver information displays with a soft cloth.
- Visually inspect battery terminals for corrosion. Corrosion may indicate a loose terminal connector, or a battery near the end of its useful service life. Consult your Volvo retailer for additional information.

**As needed:**
- Wash the vehicle, including the undercarriage, to reduce wear that can be caused by a buildup of dirt, and corrosion that can be caused by salt residues.
- Clean leaves and twigs from air intake vents at the base of the windshield, and from other places where they may collect.

**NOTE:** Complete service information for qualified technicians is available online for purchase or subscription at www.volvotechinfo.com.

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## Emission inspection readiness

**What is an Onboard Diagnostic System (OBD II)?**
OBD II is part of your vehicle's computerized engine management system. It stores diagnostic information about your vehicle's emission controls. It can light the Check Engine light (MIL) if it detects an emission control "fault." A "fault" is a component or system that is not performing within an expected range. A fault may be permanent or temporary. OBD II will store a message about any fault.

**How do states use OBD II for emission inspections?**
Many states connect a computer directly to a vehicle's OBD II system. The inspector can then read "faults." In some states, this type of inspection has replaced the tailpipe emission test.

**How can my vehicle fail OBD II emission inspection?**
Your vehicle can fail OBD II emission inspection for any of the following reasons.
- If your Check Engine (MIL) light is lit, your vehicle may fail inspection.
- If your vehicle's Check Engine light was lit, but went out without any action on your part, OBD II will still have a recorded fault. Your vehicle may pass or fail, depending on the inspection practices in your area.
- If you had recent service that required disconnecting the battery, OBD II diagnostic information may be incomplete and "not ready" for inspection. A vehicle that is not ready may fail inspection.

**How can I prepare for my next OBD II emission inspection?**
- If your Check Engine (MIL) light is lit - or was lit but went out without service, have your vehicle diagnosed and, if necessary, serviced by a qualified Volvo technician.
- If you recently had service for a lit Check Engine light, or if you had service that required disconnecting the battery, a period of driving is necessary to bring the OBD II system to "ready" for inspection. A half-hour trip of mixed stop-and-go/ highway driving is typically needed to allow OBD II to reach readiness. Your Volvo retailer can provide you with more information on planning a trip.
- Maintain your vehicle in accordance with your vehicle's maintenance schedule.

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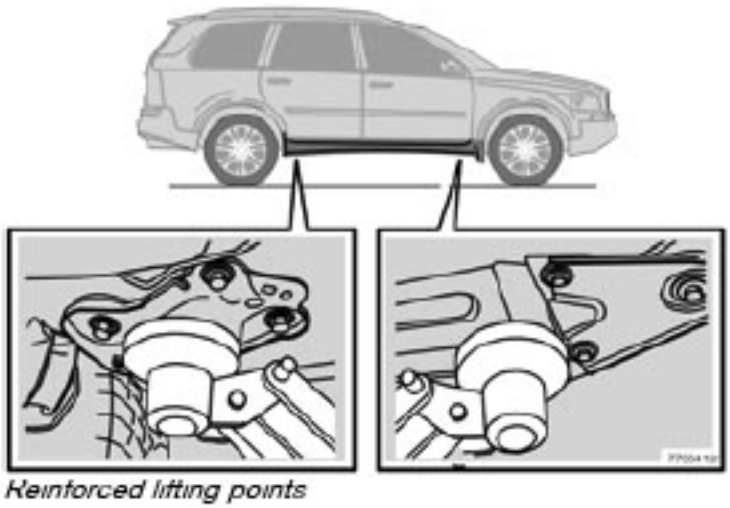
## Working on your vehicle


Reinforced lifting points

**Note the following before you begin working on your vehicle:**
**Battery (see also page 192 for more information on handling the battery)**
- Ensure that the battery cables are correctly connected and tightened.

- Never disconnect the battery when the engine is running (e.g. when replacing the battery).
- Never use a fast charger to charge the battery. The battery cables should be disconnected when recharging.
- The battery contains acid that is both corrosive and poisonous. It is important that the battery is handled in an environmentally friendly way. Let your Volvo dealer assist you.

**Hoisting the vehicle**

If a garage jack is used to lift the vehicle, the two jack attachments points should be used. They are specially reinforced to bear the weight of the vehicle (see the illustration above). A garage jack can also be placed under the front of the engine support frame. Take care not to damage the splash guard under the engine. Ensure that the jack is positioned so that the vehicle cannot slide off it. Always use axle stands or similar structures. The vehicle's gross vehicle weight is between 5770 lbs (2630 kg) and 6080 lbs (2760 kg). Use a jack and stands rated for this weight.

If a two-post hoist is used to lift the vehicle, the front and rear lift arm pads should be centered under the reinforced lift plates on the inboard edge of the sill rail (see illustration).

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## Working on your vehicle

**WARNING!**

The ignition system has very high voltage! The voltage in the ignition system is dangerous!
Do not touch spark plugs, ignition cables or the ignition coil when the engine is running or the ignition is switched on!

**The ignition should be switched off when:**

- Conducting engine tests.
- Replacing parts in the ignition system, such as spark plugs, ignition coil, distributor, ignition cables, etc.

**WARNING!**

**Never** try to repair any part of the SRS/ SIPS/WHIPS/IC systems yourself. Any interference in the system could cause malfunction and serious injury. Any work should only be performed by an authorized Volvo workshop.

**Belt check**

Check the belt regularly to make sure it is in good condition and is clean. A worn or dirty belt can cause poor cooling and low alternator output as well as impair the operation of the power steering and the air conditioning unit.

**NOTE:** The drive belt is equipped with a self-tensioning mechanism and requires no adjustment between changes.

**WARNING!**

The engine must not be running when this check is performed.

**Check coolant level**

The cooling system must be filled with coolant and not leak to operate at maximum efficiency. Check the coolant level regularly. The level should be between the "MAX" and "MIN" marks on the expansion tank. The check should be made with particular thoroughness when the engine is new or when the cooling system has been drained.

Do not remove the filler cap other than for topping up with coolant. Frequent removal may prevent coolant circulation between the engine and the expansion tank during engine warm up and cooling.

**Changing coolant**

Normally, the coolant does not need to be changed. If the system must be drained, consult your Volvo retailer.

**NOTE:** Do not top off with water only. This reduces the rust-protective and antifreeze qualities of the coolant and has a lower boiling point. It can also cause damage to the cooling system if it should freeze. Top off with Volvo Genuine Coolant/Antifreeze only (a 50/ 50 mix of water and antifreeze).

**CAUTION!**

The cooling system must always be kept filled to the correct level. If it is not kept filled, there can be high local temperatures in the engine which could result in damage. Different types of antifreeze/ coolant may not be mixed.

**WARNING!**

Never remove the radiator cap while the engine is warm. Wait until the vehicle cools.

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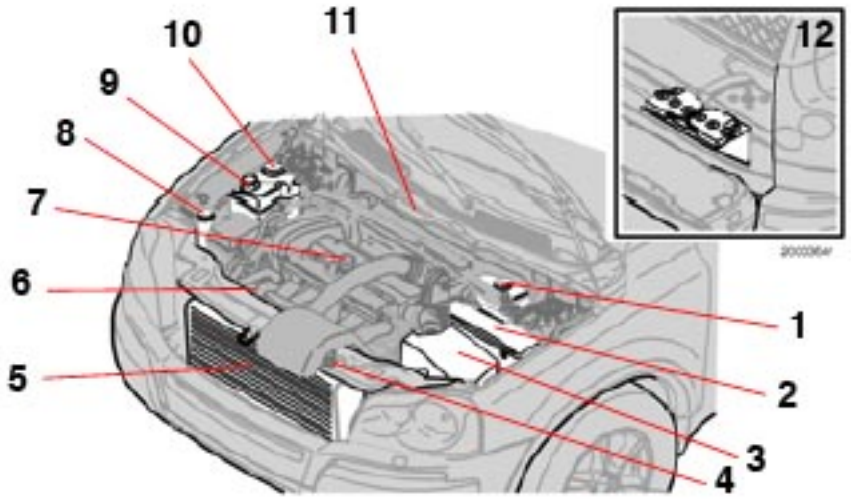
## Engine compartment




**Engine compartment**
1. Brake fluid reservoir
2. Relay/fuse box
3. Air cleaner
4. Cooling fan
5. Radiator
6. Dipstick-engine oil
7. Filler cap-engine oil
8. Washer fluid reservoir
9. Power steering fluid reservoir
10. Expansion tank-coolant
11. Data plate
12. Battery (under floor in rear cargo area)

**WARNING!**

The cooling fan (6) may start or continue to operate (for up to 6 minutes) after the engine has been switched off.

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# Engine oil

**Oil specifications**
Engine oil must meet the minimum ILSAC specification GF-3, API SL, and ACEA A1/ B1. Lower quality oils may not offer the same fuel economy, engine performance, or engine protection.

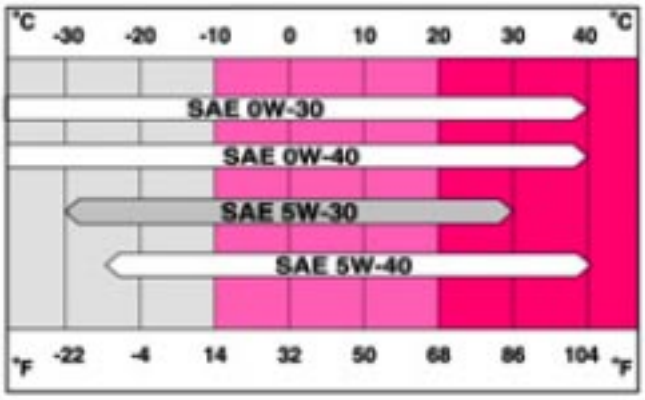
Volvo recommends Castrol.

Depending on your driving habits, premium or synthetic oils may provide superior fuel economy and engine protection. Consult your Volvo retailer for recommendations on premium or synthetic oils.

**Oil additives must not be used.**

**NOTE:** Synthetic oil is not used when the oil is changed at the normal maintenance services. This oil is only used at customer request, at additional charge. Please consult your Volvo retailer.

**Oil viscosity (stable ambient temperatures)**
**Operation in hot climates**
When temperatures exceed 86° F (30° C) in your area, Volvo recommends, for the protection of your engine, that you use a heavier weight oil, such as such as SAE 5W-40 or 0W-40. See the viscosity chart.




**Operation in temperate climates**
Incorrect viscosity oil can shorten engine life. Under normal use when temperatures do not exceed 86° F (30° C), SAE 5W-30 will provide good fuel economy and engine protection. See the viscosity chart.

**Extreme engine operation**
Synthetic oils meeting SAE 0W-30 or 0W-40 and complying with oil quality requirements are recommended for driving in areas of sustained temperature extremes (hot or cold), when towing a trailer over long distances, and for prolonged driving in mountainous areas.

*American Petroleum Institute (API) symbol*

**American Petroleum Institute (API) symbol**
The API Service Symbol "donut" is divided into three parts:
- The upper section describes the oil's performance level.
- The center identifies the oil's viscosity.
- The lower section indicates whether the oil has demonstrated energy-conserving properties in a standard test in comparison to a reference oil.

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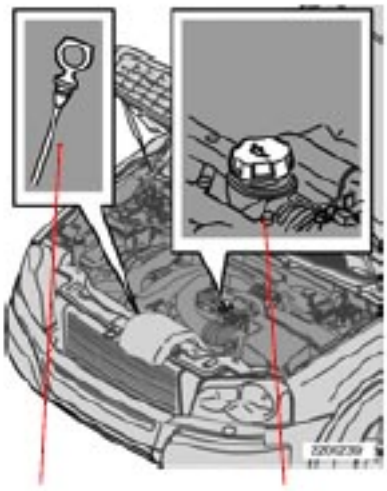
## Engine oil

**Changing engine oil and oil filter**
See the previous page for oil specifications and page 212 for oil volumes. Refer to the Warranty and Service Records Information booklet for information on the oil change intervals.

**NOTE:**
- Volvo does not recommend the use of oil additives.
- Synthetic oil is not used when the oil is changed at the normal maintenance intervals except at owner request and at additional charge. Please consult your Volvo retailer.

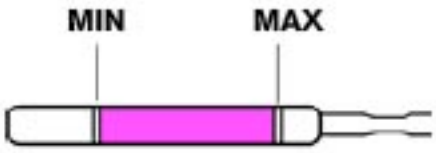
**Checking and adding oil**
The oil level should be checked every time the vehicle is refueled. This is especially important during the period up to the first scheduled maintenance service.
- The vehicle should be parked on a level surface when the oil is checked.
- **If the engine is warm**, wait for at least 10-15 minutes after the engine has been switched off before checking the oil.



*Dipstick* *Engine oil filler cap*

**Checking the oil**

- Pull out the dipstick and wipe it with a lint-free rag.
- Reinsert the dipstick, pull it out, and check the oil level.
- Add oil if necessary. If the level is close to the MIN mark, add approximately 1 US quart (1 liter) of oil.
- Run the engine until it reaches normal operating temperature.
- Switch off the engine and wait for at least 10-15 minutes and recheck the oil level. If necessary, add oil until the level is near the mark.




*Oil level should be between the MIN and MAX marks on the dipstick*

**CAUTION!**

- Not checking the oil level regularly can result in serious engine damage if the oil level becomes too low.
- Never fill oil above the MAX mark. This could cause an increase in oil consumption.
- Not checking the oil level regularly can result in serious engine damage if the oil level becomes too low.
- Always add oil of the same type and viscosity as already used.

**WARNING!**

Do not allow oil to spill onto or come into contact with hot exhaust pipe surfaces.

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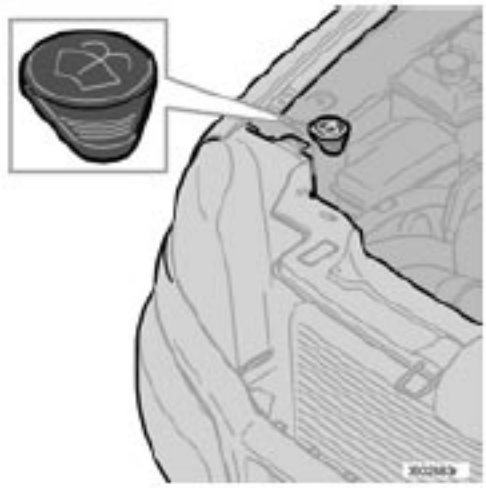
## Fluids



*Washer fluid reservoir*

**Washer fluid reservoir**
The washer fluid reservoir is located in the engine compartment and holds approx. 6.8 US qts (6.5 liters). When there is less than approximately 1 US qt (1 liter) remaining in the reservoir, the washer fluid spray will be directed to the windshield only.
During cold weather, the reservoir should be filled with windshield washer solvent containing antifreeze.

*Coolant reservoir*

**Changing coolant**
Normally, the coolant does not need to be changed. If the system must be drained, consult your Volvo retailer.

**NOTE:** Do not top off with water only. This reduces the rust-protective and antifreeze qualities of the coolant and has a lower boiling point. It can also cause damage to the cooling system if it should freeze. Top off with Volvo Genuine Coolant/Antifreeze only (a 50/50 mix of water and antifreeze).

**CAUTION!**

The cooling system must always be kept filled to the correct level. If it is not kept filled, there can be high local temperatures in the engine which could result in damage. Different types of antifreeze/ coolant may not be mixed.
Check coolant regularly!

**WARNING!**

- Never remove the radiator cap while the engine is warm. Wait until the vehicle cools.
- If it is necessary to top up the coolant when the engine is warm, unscrew the expansion tank cap slowly so that the overpressure dissipates.

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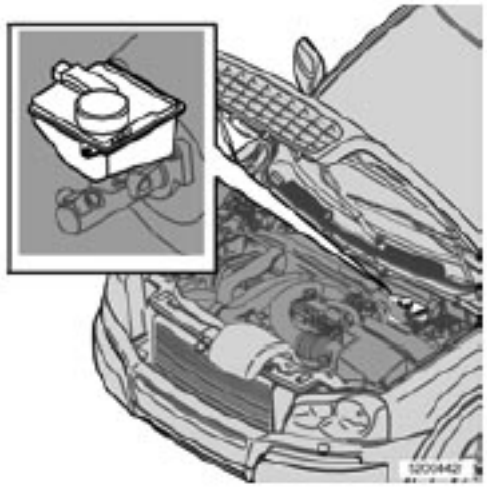
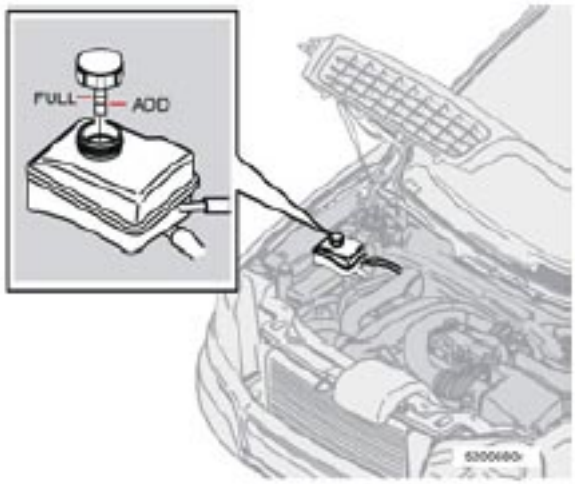
## Fluids



**Brake fluid reservoir**
The brake fluid should always be above the MIN mark on the side of the reservoir. Check, without removing the cap, that there is sufficient fluid in the reservoir.
**Fluid type:** DOT 4+ boiling point >536 °F (280 °C), P/N 9437433.
**Replace:** Every second year or 30,000 miles (48,000 km). The fluid should be replaced once a year or every 15,000 miles (24,000 km) when driving under extremely hard conditions (mountain driving, etc.). Always entrust brake fluid changing to an authorized Volvo retailer.




**Power steering fluid reservoir**
The fluid level should always be between the ADD and FULL marks.
**Fluid type:** Volvo synthetic power steering fluid (Pentosin CHF 11S) P/N 1161529 or equivalent.
**Replace:** No fluid change required.

**NOTE:** If a problem should occur in the power steering system or if the vehicle has no electrical current and must be towed, it is still possible to steer the vehicle. However, keep in mind that greater effort will be required to turn the steering wheel.

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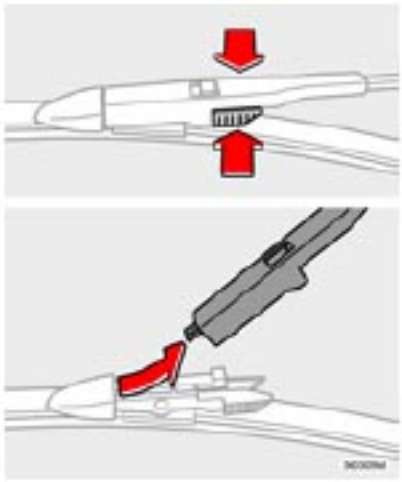
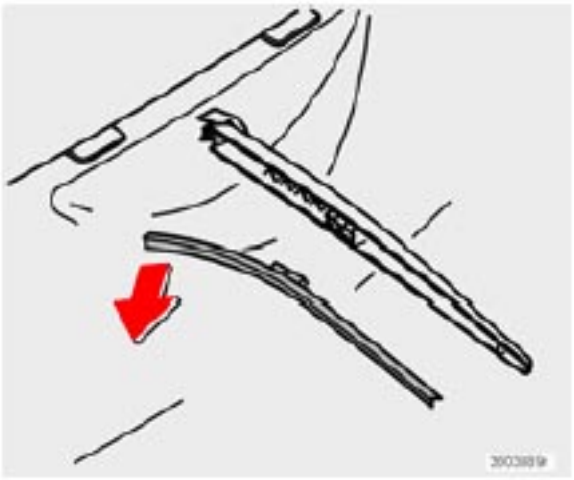
## Wiper blades



**Windshield wiper blades**
To change a windshield wiper blade:
- Fold the wiper arm out from the windshield and hold the wiper blade.
- Press in the grooved catches and pull out the wiper blade.
- Insert a new wiper blade and ensure that it is securely in place.

**NOTE:** The driver's side wiper blade is longer than the one on the passenger's side.



**Tailgate wiper blade**
To change a tailgate wiper blade:
- Pull the wiper arm rearward, away from the tailgate window.
- Pull out the wiper blade as shown in the illustration.
- Press the new wiper blade into place. Check that it is properly secured.

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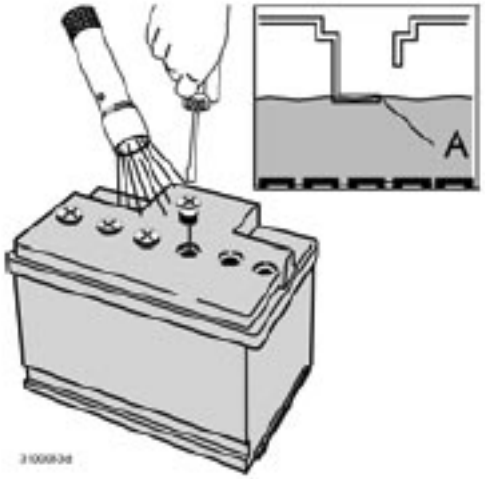
## Battery



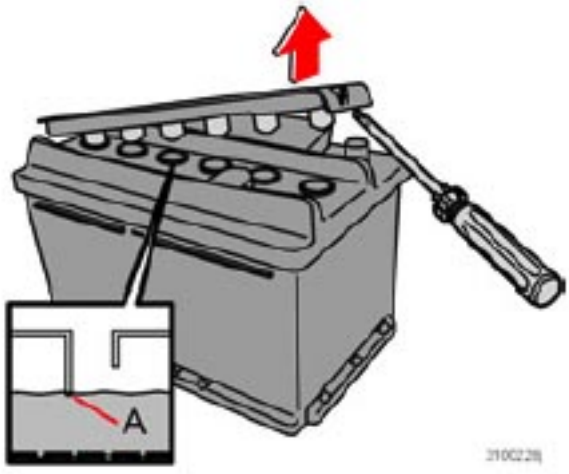

*Two types of battery may be used and are fully interchangeable*

**Battery maintenance**

The battery in your vehicle is located under the floor of the cargo compartment.

Driving habits and conditions, climate, the number of starts, etc. all affect the service life and function of the battery. In order for your battery to perform satisfactorily, keep the following in mind:

- Check the fluid level in each cell in the battery every 24 months or every 15,000[1] miles (24,000 km), whichever is sooner. The fluid should be at the level shown in the illustration above (A)[2]. Do not overfill.




- Use a screw driver to open the caps or cover and a flashlight to inspect the level.
- If necessary, add distilled water. The level should never be above the indicator (A)[2].
- The fluid level should be checked if the battery has been recharged.
- After inspection, be sure the cap over each battery cell or cover is securely in place.
- Check that the battery cables are correctly connected and properly tightened. Route ventilation hose through opening in floor (see page 192)
- Never disconnect the battery when the engine is running, for example when changing the battery.
- The battery should be disconnected from the vehicle when a battery charger is used directly on the battery.

- However, if the battery is being charged via the connecting points in the engine compartment (see page 185), the battery must be connected.

1. More frequently in warm climates.
2. The level indicator inside the battery could be designed in various ways. See illustrations.

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## Battery

**WARNING!**

**PROPOSITION 65 WARNING!**
Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm. Wash hands after handling.

**WARNING!**

- Never expose the battery to open flame or electric spark.
- Do not smoke near the battery.
- Battery fluid contains sulfuric acid. Do not allow battery fluid to contact eyes, skin, fabrics or painted surfaces. If contact occurs, flush the affected area immediately with water. Obtain medical help immediately if eyes are affected.

**NOTE:** Used batteries should be properly disposed of at a recycling station or similar facility, or taken to your Volvo retailer.

**Symbols:**

Wear protection goggles

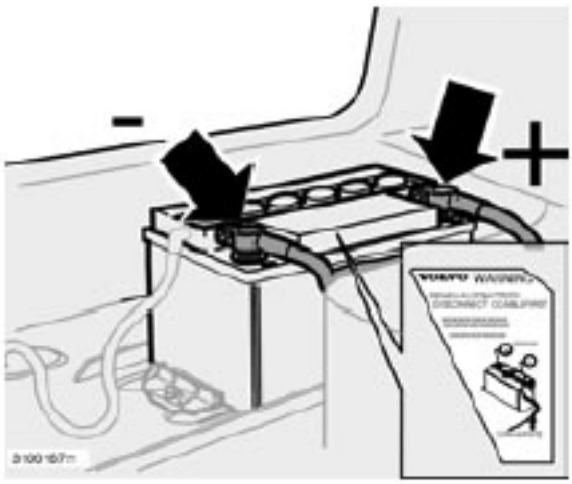
See owner's manual for details

Keep away from children

Corrosive

No smoking, no open flames, no sparks

Explosion




**Replacing the battery**

- Switch off the ignition.
- **Wait at least 5 minutes after switching off the ignition before disconnecting the battery** so that all information in the vehicle's electrical system can be stored in the control modules.
- Remove the retaining bracket and unscrew the cover over the battery. Wait at least 5 minutes after

switching off the ignition before disconnecting the battery so that all information in the vehicle's electrical system can be stored in the control modules.

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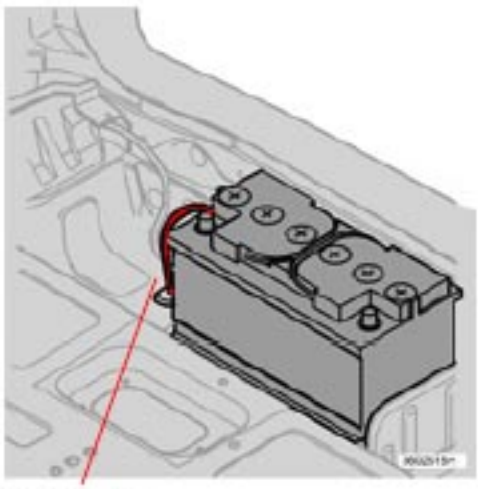
## Battery

- Disconnect the negative (ground) cable first.
- Disconnect the positive cable and pull the ventilation hose (see next page) from the battery.
- Lift out the old battery and put a new battery into place.
- Connect the positive cable first.
- Connect the negative (ground) cable. - Be sure that the ventilation hose (see below) is securely connected to the battery and that the other end of the hose is properly routed through the ventilation opening in the floor of the battery compartment.



*Ventilation hose*

- Reinstall the cover and retaining bracket and screw it securely in place.

**NOTE:** After the battery has been disconnected or replaced, lock and unlock the vehicle with the central locking system's remote control to reactivate such features as the power windows, moonroof, courtesy lighting, etc.

**WARNING!**

**Ventilation hose:**

- The battery generates hydrogen gas, which is flammable and explosive. The battery is fitted with a ventilation hose which vents hydrogen gas out of the battery compartment through a ventilation opening in the bottom of this compartment. If the battery must be replaced, it is essential that the ventilation hose is properly connected to the battery and that it is routed through the ventilation opening provided (see illustration).
- Be sure the ventilation hose is free of debris.
- Only use replacement batteries equipped with a ventilation hose. Consult your Volvo retailer.

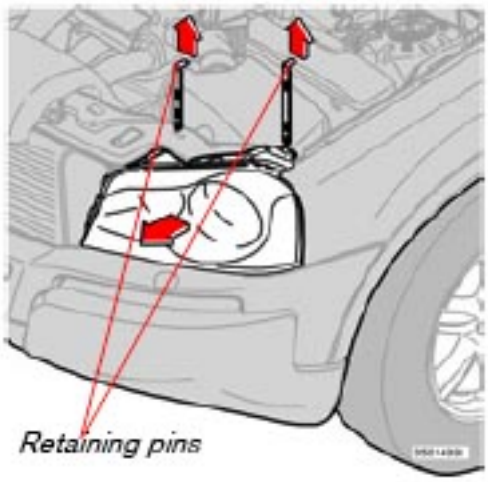
pg. 194 Maintenance

## Replacing bulbs

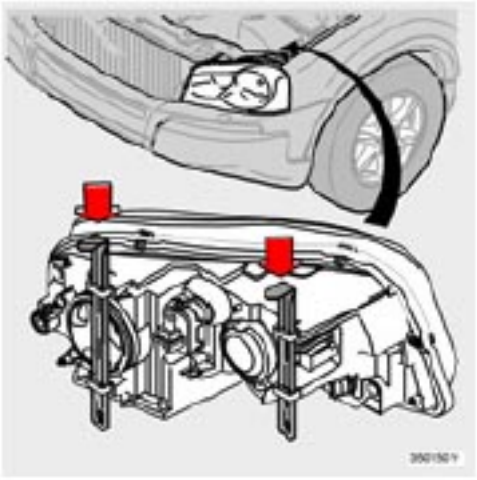
When replacing bulbs, keep the following points in mind:

- Never touch the glass of bulbs with your fingers. Grease and oils from your fingers vaporize in the heat and will leave a deposit on the reflector, which will damage it.
- The optional Active Bi-Xenon headlight bulbs contain trace amounts of mercury. These bulbs should always be disposed of by an authorized Volvo retailer.
- The following bulbs should only be replaced by a trained and qualified Volvo service technician:

- Active Bi-Xenon headlights,
- Courtesy (dome) lighting,
- Reading lights,
- Glove compartment lights
- Turn signals and courtesy lights in the side door mirrors
- High-mounted brake lights




**Replacing high/low beams/turn signal/parking light bulbs**
The entire lamp housing must be lifted out when replacing these bulbs.
To lift out the lamp housing:
- Switch off the ignition.
- Open the hood.
- Pull up the retaining pins (see the illustration above).
- Lift out the lamp housing.

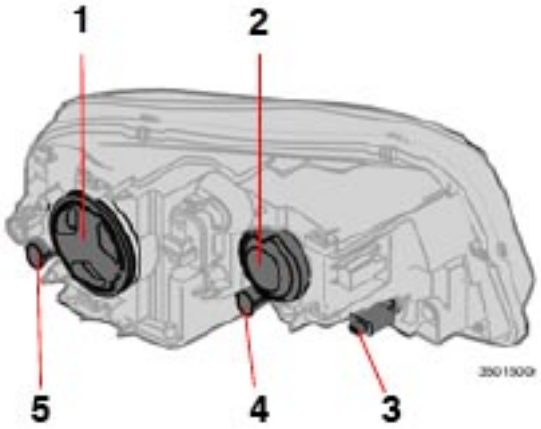


**WARNING!**

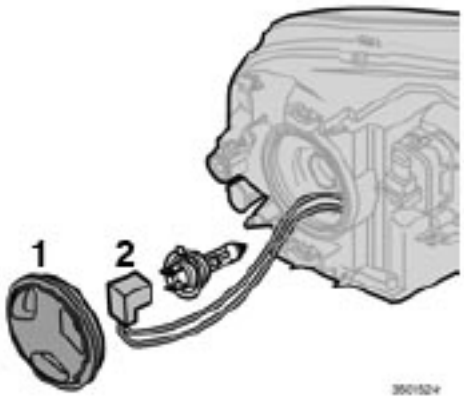
Active Bi-Xenon headlights (option) - due to the high voltage used by these headlights, these bulbs should only be replaced by an authorized Volvo service technician.

pg. 195 Maintenance

## Replacing bulbs




**Location of the bulbs in the headlight housing**
- Low beam headlight/Active Bi-Xenon headlight (option)
- High beam headlight
- Turn signal
- Parking light
- Side marker light




**Replacing the low beam bulb**
(Halogen headlights)
- Remove the plastic cover over the bulb (1) by turning it counterclockwise.
- Pull the connector from the lamp housing (2).
- Loosen the bulb's retaining spring by first moving it to the right and then moving it out of the way.
- Pull out the bulb from the holder.
- Insert the new bulb (without touching the glass) in the holder.
- Move the retaining spring up and push it slightly to the left until it seats properly.
- Press the bulb holder into place on the headlight housing.
- Reinstall the plastic cap. The letters "HAUT" on the cap must be upward.

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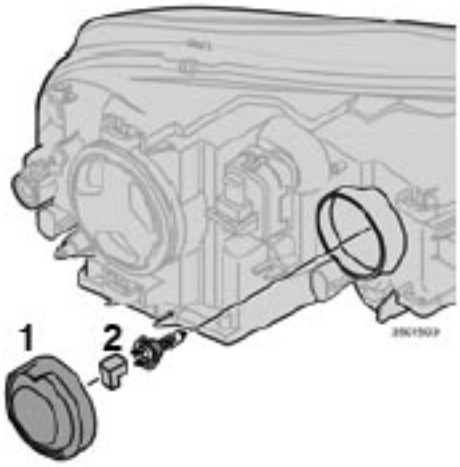
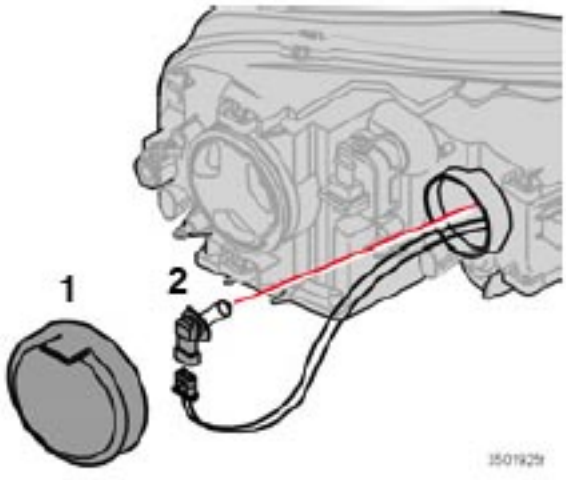
## Replacing bulbs




**Replacing the high beam bulb**
(Halogen headlights)
- Remove the rubber cover (1) by pulling it off.
- Pull the connector from the lamp housing (2).
- Loosen the bulb's retaining spring by first moving it to the right and then moving it out of the way.
- Pull out the bulb from the holder.
- Insert the new bulb (without touching the glass) in the holder.
- Move the retaining spring up and push it slightly to the left until it seats properly.
- Press the bulb holder into place on the headlight housing.
- Press the rubber cover into place.

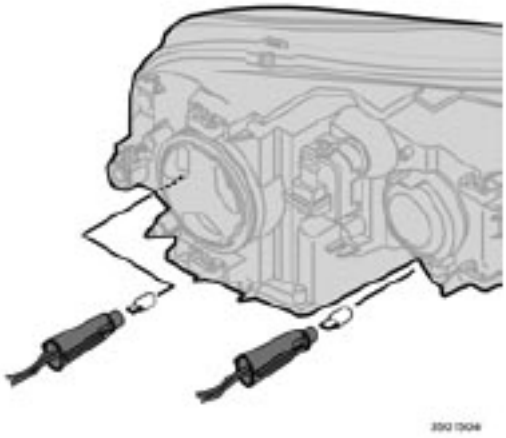



**Replacing the high beam bulb**
(Active Bi-Xenon headlights)

- Remove the rubber cover over the bulb (1) by pulling it off.
- Turn the bulb holder counterclockwise and pull it out of the headlight housing.
- Remove the connector from the bulb unit (2) by pressing the lock tab out and pulling.
- Connect the connector to the new bulb unit until it clicks into place.
- Press a new bulb unit into the headlight housing and turn it clockwise into place.
- Reinstall the plastic cover.

pg. 197 Maintenance

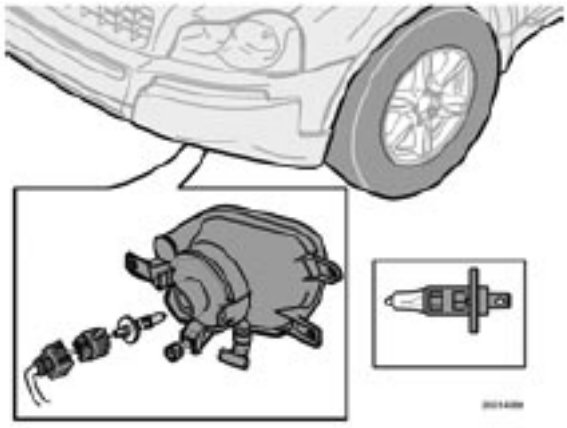
## Replacing bulbs



**Replacing the parking light/side marker light bulbs**

- Turn the lamp holder approximately 1/4 turn counterclockwise and pull it out of the headlight housing.
- Pull the bulb straight out.
- Align the guide lugs on the side of the base of the new bulb in the grooves in the holder and press it into place.
- Press the lamp holder into the place in the headlight housing and turn it approximately 1/4 turn clockwise.

**Replacing the turn signal bulb**
- Turn the lamp holder approximately 1/4 turn counterclockwise and pull it out of the headlight housing.
- Press in the bulb slightly and pull it out of the holder.
- Align the guide lugs on the side of the base of the new bulb in the grooves in the holder. Press it in and turn it slightly clockwise.
- Press the lamp holder into the place in the headlight housing and turn it approximately 1/4 turn clockwise.



**Front fog lights**
**Avoid touching the glass on the bulb with your fingers.**
- Switch off the ignition.
- Turn the bulb holder slightly counterclockwise to release it.
- Replace the bulb. The shape of the foot of the bulb corresponds to the shape of the bulb holder.
- Reinstall the bulb holder by turning it slightly clockwise. The side of the holder marked "TOP" should face upward.

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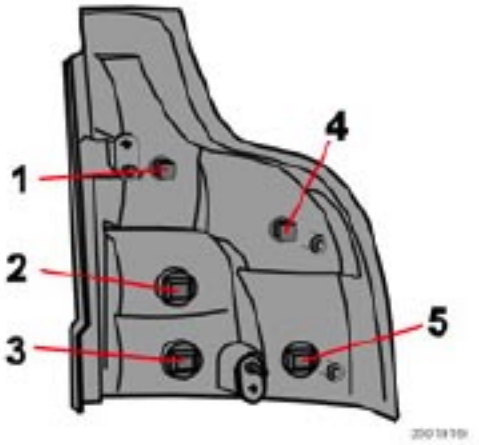
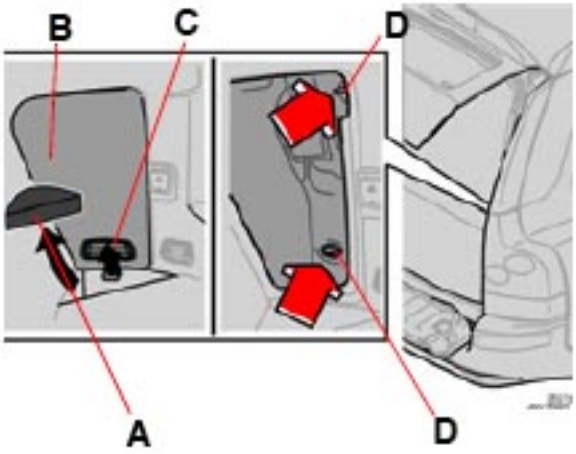
## Replacing bulbs




**Location of tail light bulbs**
1. Parking light
2. Turn signal
3. Back-up light
4. Parking light
5. Brake light

**NOTE:** If the message indicating a burned out bulb remains in the information display after a bulb has been replaced, consult an authorized Volvo retailer or workshop.



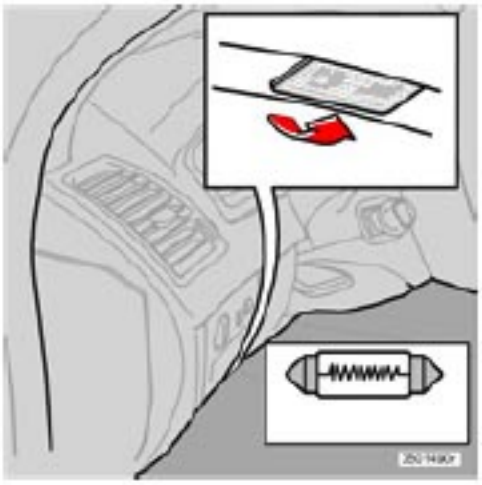

**Replacing bulbs in the tail light cluster**
- Switch off all lights and turn ignition key to position 0.
- Fold down the lower section of the tailgate, and fold up the rear section of the cargo area floor.
- If the vehicle is equipped with the optional grocery bag holder, detach the holder's bands.
- Remove the corner panel (A in the illustration above).
- Open the cover (B) in the side panel by pulling the tab (C) upward/outward.
- Loosen the bolts (D).
- Pull the entire tail light housing straight out.
- Disconnect the wiring.

- Place the tail light housing on a soft cloth to avoid scratching the lens.
- Turn the lamp holder(s) counterclockwise and pull out.
- Turn signal, back-up light, brake light bulbs: Turn the bulb counterclockwise and remove it.
- Parking light bulbs: Pull the bulb straight out.
- Insert a new bulb.
- Place the lamp holder in the groove and turn clockwise.
- Press wiring back into place.
- Align the tail light housing with the holes for the retaining bolts and press it into place.
- Tighten the retaining bolts.
- Reinsert the side and corner panels.

pg. 199 Maintenance

## Replacing bulbs

**Rear fog light**
- Switch off the ignition.
- Carefully insert a small screwdriver (see illustration above).
- Pry out the lamp housing.
- Turn the bulb holder counterclockwise and remove it.
- Turn the bulb counterclockwise and remove it.
- Insert a new bulb and press the lamp housing back into place.



**Door step courtesy lights**

The door step courtesy lights are located under the dashboard on the driver's and passenger's sides. To replace a bulb:

- Carefully insert a screwdriver and pry out the lens.
- Replace the defective bulb.
- Reinstall the lens.

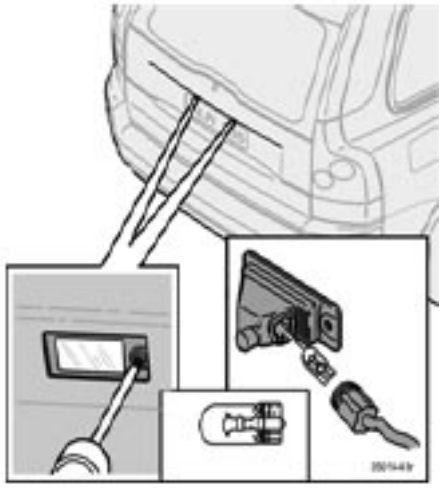
**Cargo compartment light**

- Carefully insert a screwdriver and pry out the lens.
- Pry out the bulb and replace it.
- Press the lens back into place.

pg. 200 Maintenance

## Replacing bulbs

**Vanity mirror lights**
- Carefully insert a screwdriver and pry out the lens.
- Pry out the bulb and replace it.
- Carefully press the lower edge of lens onto the four tabs and press the upper edge of the lens into place.



**License plate lights**
- Switch off the ignition.
- Loosen the screws with a Torx screwdriver.
- Turn the bulb holder counterclockwise and pull it out.
- Pull out the defective bulb and insert a new one.
- Reinsert the bulb holder into the housing and turn it clockwise.
- Reinstall the housing and screw it into place.

**NOTE:** Other bulbs may be difficult for you to replace yourself. Let an authorized Volvo retailer replace these bulbs if necessary.

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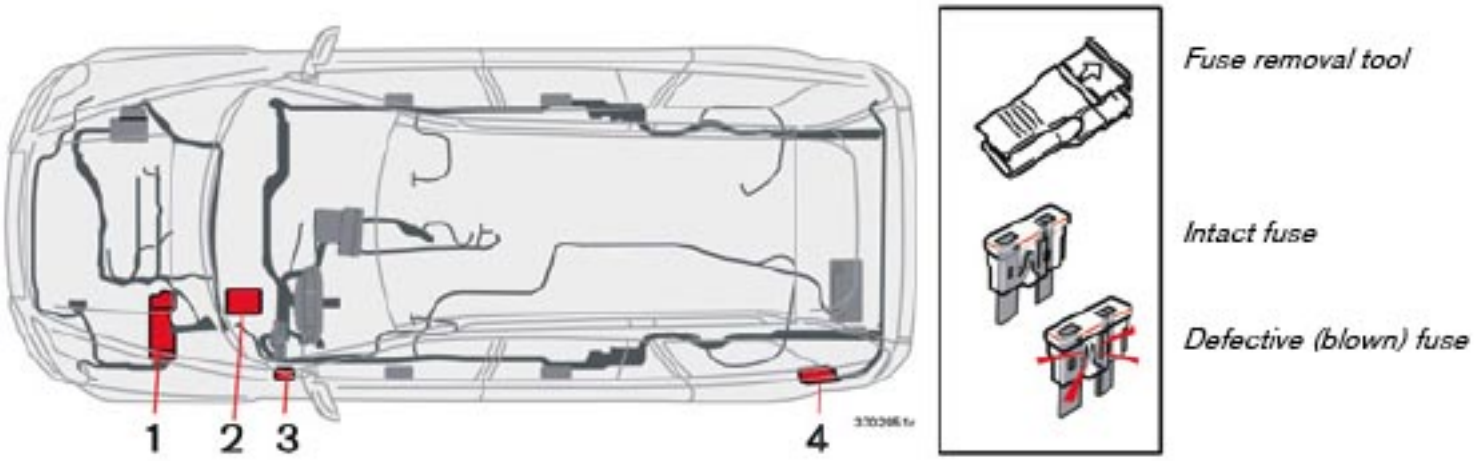
# Fuses




**Replacing fuses**
If an electrical component fails to function, it is possible that a fuse has blown.
The fuse boxes are located in four different places:

- Relays/fuse box in the engine compartment
- Fuse box in the passenger compartment, behind the plastic cover
- Fuse box in the passenger compartment, on the edge of the dashboard
- Fuse box in the cargo compartment.

A label on the inside of each cover indicates the amperage and the electrical components that are connected to each fuse.

The easiest way to see if a fuse is blown is to remove it. Pull the fuse straight out. If a fuse is difficult to remove, you will find a special fuse removal tool (and several extra fuses) in the passenger compartment fuse box on the driver's end of dashboard. From the side, examine the curved metal wire (see the illustration above) to see if it is broken. If so, put in a new fuse of the **same color and amperage** (written on the fuse). Spare fuses are stored in the fuse box in the engine compartment and the passenger compartment. If fuses burn out repeatedly, have the electrical system inspected by an authorized Volvo retailer.

**WARNING!**

Never use fuses with higher amperage than those stated on the following pages. Doing so could overload the vehicle's electrical system.

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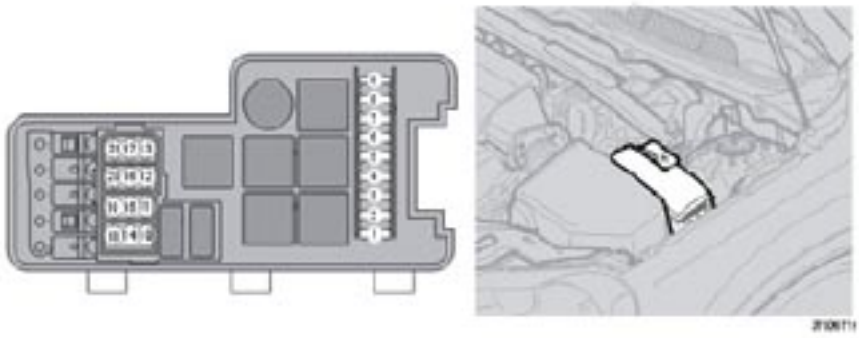
# Fuses



**Fuses in the engine compartment**
When replacing fuses, be sure to replace a blown fuse with a new one of the same color and amperage (written on the fuse).

| No. | Amperage |
|---|---|
| 1. ABS | 30 |
| 2. ABS | 30 |
| 3. Headlight washers | 35 |
| 4. | - |
| 5. Auxiliary lights (option) | 20 |
| 6. Starter motor relay | 35 |
| 7. Windshield wipers | 25 |
| 8. Fuel pump | 15 |
| 9. Transmission control module (V8 and 6- cyl.) | 15 |
| 10. Ignition coils, engine control module | 20 |
| 11. Throttle pedal sensor, A/C compressor, e-box fan | 10 |
| 12. Engine control module, fuel injectors, mass airflow sensor | 15 |
| 13. Throttle control (V8), Intake manifold actuator (6-cyl.) | 10 |
| 14. Heated oxygen sensor. | 20 |
| 15. Crankcase ventilation, solenoid valves, A/C connection, leakage diagnostics, engine control module (V8, 6-cyl.), mass airflow sensor (V8) | 15 |
| 16. Driver's side low beam headlight | 20 |
| 17. Passenger's side low beam headlight | 20 |

| | |
|---|---|
| 18. | - |
| 19. Engine control module feed, engine relay | 5 |
| 20. Parking lights | 15 |
| 21. | - |

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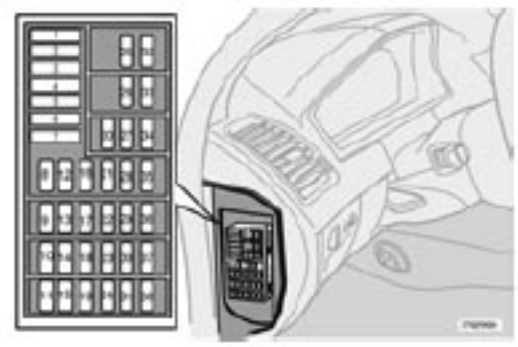
## Fuses



**Fuses in the passenger compartment**
Fuses are located inside the access panel on the edge of the dashboard, on the driver's side. There are also a number of spare fuses. When replacing a blown fuse, be sure to replace it with a new one of the same color and amperage (written on the fuse).

| No. | Amperage |
|---|---|
| 1. Blower - climate system | 30 |
| 2. Audio amplifier | 30 |
| 3. Power driver's seat (option) | 25 |
| 4. Power passenger's seat (option) | 25 |
| 5. Driver's door - central locking, power windows, door mirror | 25 |
| 6. Front passenger's door - central locking, power windows, door mirror | 25 |
| 7. | - |
| 8. Radio, CD player, Rear Seat Entertainment (RSE) | 15 |
| 9. Volvo Navigation System (option), Sirius satellite radio (option) | 10 |
| 10. On-board diagnostics, headlight switch, steering wheel angle sensor, steering wheel module | 5 |

| | |
|---|---|
| 11. Ignition switch, SRS, engine control module (V8, 6-cyl.) immobilizer, transmission control module (V8, 6-cyl.) | 7.5 |
| 12. Ceiling lighting, upper electronic control module | 10 |
| 13. Moonroof (option) | 15 |
| 14. | - |
| 15. | - |
| 16. | - |
| 17. | - |
| 18. | - |
| 19. | - |
| 20. | - |
| 21. | - |
| 22. | - |
| 23. | - |
| 24. | - |
| 25. | - |
| 26. | - |
| 27. | - |
| 28. | - |
| 29. | - |
| 30. | - |
| 31. | - |
| 32. | - |
| 33. | - |
| 34. | - |
| 35. | - |
| 36. | - |
| 37. | - |
| 38. | - |

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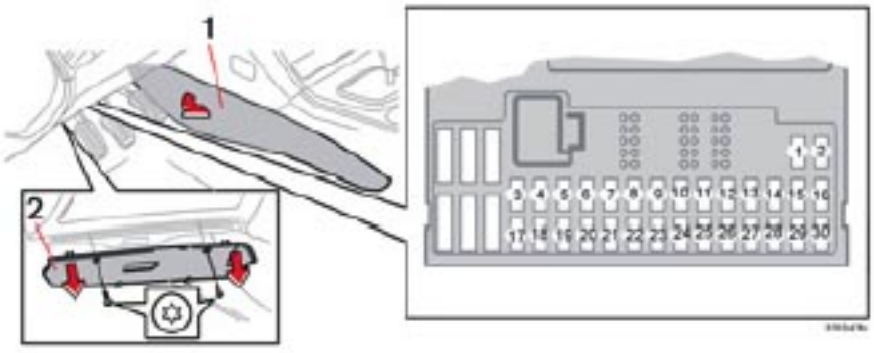
# Fuses




**Fuse box in the passenger compartment, behind the plastic cover, driver's side**
This fuse box is located behind the plastic cover below the steering wheel. When replacing a blown fuse, be sure to replace it with a new one of the same color and amperage (written on the fuse).

| No. | Amperage |
|---|---|
| 1. Heated passenger's seat | 15 |
| 2. Heated driver's seat | 15 |
| 3. Horn | 15 |
| 4. | - |
| 5. Audio system | 10 |
| 6. | - |
| 7. | - |
| 8. Alarm siren | 5 |
| 9. Brake light switch feed | 5 |
| 10. Instrument panel, climate system, power driver's seat, Occupant Weight Sensor | 10 |
| 11. 12-volt sockets - front and rear seats | 15 |
| 12. | - |
| 13. | - |
| 14. | - |
| 15. ABS, STC/DSTC | 5 |
| 16. Power steering, Active Bi-Xenon headlights (option) | 10 |
| 17. Driver's side front foglight (option) | 7.5 |
| 18. Passenger's side front foglight (option) | 7.5 |
| 19. | - |

| | |
|---|---|
| 20. Coolant pump (V8) | 5 |
| 21. Transmission control module | 10 |
| 22. Driver's side high beam | 10 |
| 23. Passenger's side high beam | 10 |
| 24. | - |
| 25. | - |
| 26. | - |
| 27. | - |
| 28. Power passenger's seat (option) | 5 |
| 29. | - |
| 30. | - |
| 31. | - |
| 32. | - |
| 33. Vacuum pump | 20 |
| 34. Pump - windshield and tailgate washers | 15 |
| 35. | - |
| 36. | - |

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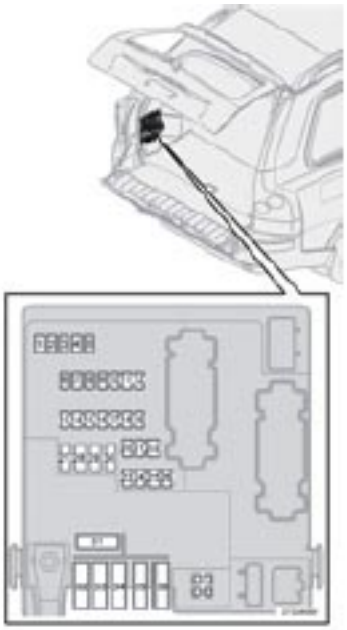
## Fuses



**Fuses in the cargo compartment**

The fuses in the cargo area are located behind the panel on the driver's side of the cargo compartment. When replacing a blown fuse, be sure to replace it with a new one of the same color and amperage (written on the fuse).

| No. | Amperage |
|---|---|
| 1. Backup lights | 10 |
| 2. Parking lights, foglights, cargo compartment lighting, license plate lights, brake light diodes | 20 |
| 3. Accessories | 15 |
| 4. | - |
| 5. Rear Electronic module | 10 |
| 6. Rear Seat Entertainment (accessory) | 7.5 |
| 7. Trailer wiring (30-feed) | 15 |
| 8. 12-volt socket in cargo compartment | 15 |
| 9. Rear passenger's side door - power window, power window cutout function | 20 |
| 10. Rear driver's side door - power window, power window cutout function | 20 |
| 11. | - |
| 12. | - |
| 13. | - |
| 14. Subwoofer (option), rear air conditioning system (option) | 15 |
| 15. | - |

| | |
|---|---|
| 16. | - |
| 17. Accessory audio | 5 |
| 18. | - |
| 19. Rear window wiper | 15 |
| 20. Trailer wiring (15-feed) | 20 |
| 21. | - |
| 22. | - |
| 23. All Wheel Drive | 7.5 |
| 24. | - |
| 25. | - |
| 26. Park assist | 5 |
| 27. Main fuse: trailer wiring, park assist, All Wheel Drive | 30 |
| 28. Central locking system | 15 |
| 29. Driver's side trailer lighting: parking lights, turn signal | 25 |
| 30. Passenger's side trailer lighting: brake light, fog light, turn signal | 25 |

pg. 206 Maintenance

## Fuses

| No. | Amperage |
|---|---|
| 31. Main fuse: fuses 37 and 38 | 40 |
| 32. | - |
| 33. | - |
| 34. | - |
| 35. | - |
| 36. | - |
| 37. Heated rear window | 20 |
| 38. Heated rear window | 20 |

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# 2007 VOLVO XC90

## Specifications

### pg. 207 Specifications


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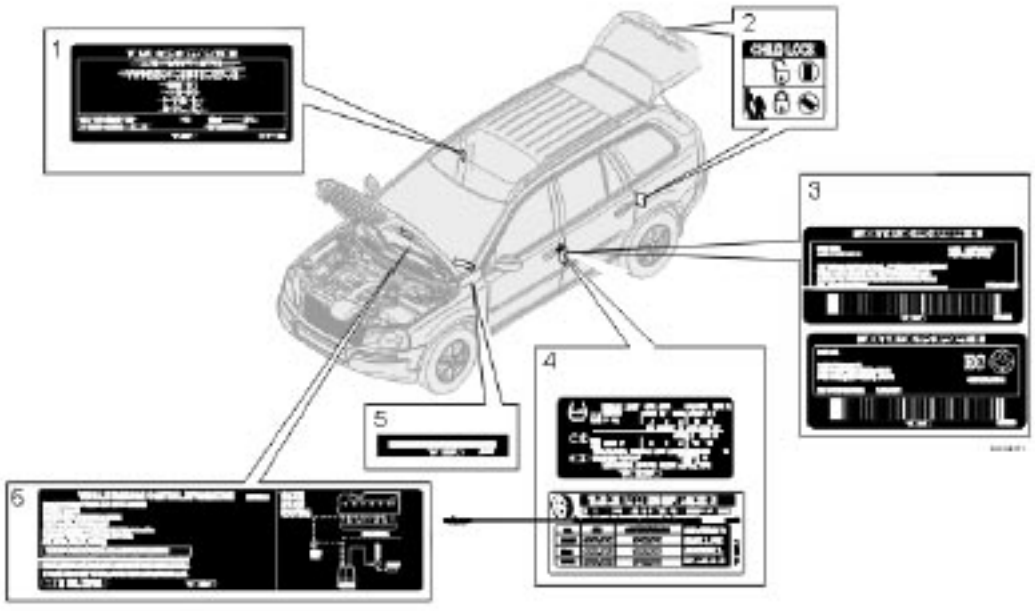
| Volvo programs | 218 |


***All specifications are subject to change without prior notice.***

### pg. 208 Specifications

## Label information




**1. Model plate**
Vehicle Identification Number (VIN). Codes for color and upholstery, etc.

**2. Child safety lock labels[1]**

**3. Federal Motor Vehicle Safety Standards (FMVSS) specifications (USA) and Ministry of Transport (CMVSS) standards (Canada)**
Your Volvo is designed to meet all applicable safety standards, as evidenced by the certification label on the facing side of the driver's door. For further information regarding these regulations, please consult your Volvo retailer.

**4. Loads and Tire Pressures**
The appearance of the decal will vary, depending on the market for which the vehicle is intended.

- Canadian models: upper decal
- U.S. models: lower decal

**5. Vehicle Identification Number (VIN)**
The VIN plate is located on the top left surface of the dashboard. The VIN is also stamped on the right hand door pillar. The Vehicle Identification Number (VIN) should always be quoted in all correspondence concerning your vehicle with the retailer and when ordering parts.

**6. Vehicle Emission Control Information/ Vacuum hose routing**
Your Volvo is designed to meet all applicable emission standards, as evidenced by the certification label on the underside of the hood. For further information regarding these regulations, please consult your Volvo retailer.

1. Not on vehicles equipped with the optional power child safety locks.

pg. 209 Specifications

## Weights

| Gross vehicle weight[1] | USA | Canada |
|---|---|---|
| 5-seat, 6-cyl, FWD | 5750 lbs | - |
| 5-seat, 6-cyl, AWD | 5900 lbs | 2680 kg |
| 5-seat, 8-cyl, AWD | 5900 lbs | 2680 kg |
| 7-seat, 6-cyl, FWD | 5915 lbs | - |
| 7-seat, 6-cyl, AWD | 6080 lbs | 2760 kg |
| 7-seat, 8-cyl, AWD | 6100 lbs | 2770 kg |
| Capacity weight | | |
| 5-seat models | 1160 lbs | 525 kg |
| 7-seat models | 1210 lbs | 550 kg |
| Permissible axle weight, front* | | |
| 5-seat, 6-cyl, FWD | 770 lbs | - |
| 5-seat, 6-cyl, AWD | 2880 lbs | 1310 kg |
| 5-seat, 8-cyl, AWD | 2930 lbs | 1330 kg |
| 7-seat, 6-cyl, FWD | 2770 lbs | - |
| 7-seat, 6-cyl, AWD | 2880 lbs | 1310 kg |

| | | |
|---|---|---|
| 7-seat, 8-cyl, AWD | 2930 lbs | 1330 kg |

1. Permissible axle weight or gross vehicle weight must never be exceeded.

| **Permissible axle weight, rear[1]** | **USA** | **Canada** |
|---|---|---|
| 5-seat, 6-cyl, FWD | 3060 lbs | - |
| 5-seat, 6-cyl, AWD | 3150 lbs | 1430 kg |
| 5-seat, 8-cyl, AWD | 3150 lbs | 1430 kg |
| 7-seat, 6-cyl, FWD | 3170 lbs | - |
| 7-seat, 6-cyl, AWD | 3240 lbs | 1470 kg |
| 7-seat, 8-cyl, AWD | 3240 lbs | 1470 kg |
| Curb weight | | |
| 5-seat, FWD | 4290-4400 lbs | - |
| 5-seat, AWD | 4420-4655 lbs | 2020-2130 kg |
| 7-seat, FWD | 4475-4570 lbs | - |
| 7-seat, AWD | 4605-4820 lbs | 2110-2160 kg |
| Max. roof load | 220 lbs | 100 kg |
| Trailer weight, w/o brakes | 1650 lbs | 750 kg |
| Trailer weights, with brakes | See the table on page 137 | |
| Max. tongue weight | See the table on page 137 | |

**WARNING!**

When adding accessories, equipment, luggage and other cargo to your vehicle, the total capacity weight must not be exceeded.

pg. 210 Specifications

## Dimensions

| | |
|---|---|
| Length | 188.9 in (479.8 cm) |
| Width | 74.7 in (189.8 cm) |
| Height | 70.2 in (178.4 cm) |
| Wheelbase | 112.6 in (285.7 cm) |
| Front track | 64.3 in (163.4 cm) |
| Rear track | 63.9 (162.4 cm) |
| Turning circle | 39-40 ft. (11.9-12.3 m) |

**Cargo capacity**
With optional 3rd row of seats folded down:
5-seat: 41.6 cu. ft (1178 liters)
7-seat: 43.3 cu. ft (1225 liters)
Behind 1st row of seats, with 2nd (and optional 3rd) row of seats folded down:
5-seat: 84.9 cu. ft (2403 liters)
7-seat: 85.1 cu. ft (2410 liters)
Behind 1st row of seats, with front passenger seat, 2nd row (and optional 3rd row) of seats folded down:
5-seat: 92.0 cu. ft (2606 liters)
7-seat: 93.2 cu. ft (2640 liters)

pg. 211 Specifications

## Bulbs

| | | |
|---|---|---|
| High beam | H7 65W | - |
| Low beam | H11 55W | - |
| Active Bi-Xenon low beam (option) | D1S 35W | |
| Active Bi-Xenon high beam (option) | H9 65W | |
| Front fog lights | H1 55W | |
| Front/rear parking lights, front/rear side marker lights license plate light, rear footwell lighting | W5W | W2,1x9,5d |
| Front turn signals | H21W | BAY9s |

| | | |
|---|---|---|
| Rear fog light | P21/4W | BAY9s |
| Brake lights, backup lights | P21W | BA15s |
| Rear turn signals | PY21W | BA15s |
| 10. Vanity mirror lighting | 1.2W | SV5.5 |
| 11. Front footwell lighting, cargo area lighting | C5W | SV8.5 |

**WARNING!**

Active Bi-Xenon headlights (option) - due to the high voltage used by these headlights, these bulbs should only be replaced by an authorized Volvo service technician.

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## Engine oil

**Specifications**
Engine oil must meet the minimum ILSAC specification GF-3, API SL, and ACEA A1/ B1. Lower quality oils may not offer the same fuel economy, engine performance, or engine protection.

Volvo recommends Castrol.

**Volume**

| Engine designation | Volume between MIN-MAX on dipstick | Volume[1] |
|---|---|---|
| 3.2 6-cyl. B6324S | 0.85 US qts (0.8 liters) | 7.7 US qts (7.3 liters) |
| V8 AWD B8444S | 1.3 US qts (1.2 liters) | 7.1 US qts. (6.7 liters) |

1. Including filter replacement

pg. 213 Specifications

## Fluid specifications and capacities

| | |
|---|---|
| **Fuel tank** | 21.1 US gals. (80 liters) Minimum octane requirement - AKI 87 (RON 91) - unleaded fuel (See also page 117) |
| **Transmission oil[1]** | |
| TF-80SC | 7.4 US qts. (7.0 liters) |
| **Miscellaneous** | |
| Power steering | 1.1 US qts. (1.0 liters) |
| Windshield washer reservoir | 6.9 US qts. (6.5 liters) |
| Brake fluid | 0.63 US qts. (0.6 liters) |
| Air conditioning system | Front - 2.2 lb. (1 kg), Rear (option) 2.9 lb. (1.3 kg) R 134a (HFC134a) |
| **Coolant** | Volvo original coolant/antifreeze (Thermostat begins to open at 194° F (90° C)). |
| 3.2 6-cyl. | 7.9 US qts. (7.5 liters) |
| V8 | 10.7 US qts. (10.2 liters) |

1. The transmission oil does not normally need to be changed during the service life of the vehicle. However, it may be necessary to replace the oil if the vehicle is often driven in areas of sustained temperature extremes (hot or cold), when towing a trailer over long distances, for prolonged driving in mountainous areas, or if the vehicle is often driven short distances in temperatures under 40°F (5°C).

**Transmission**
**Oil grade:**
**Type:** JWS 3309
Different types of oil should never be mixed.

**Power steering**
**Grade:** Volvo synthetic power steering fluid (Pentosin CHF 11S) P/N 1161529 or equivalent.

**Brake fluid**
**Fluid type:** DOT 4+ boiling point >536° F (280° C), P/N 9437433

**Rear suspension**
Individual rear wheel suspension with longitudinal support arms, double link arms and track rods.

**Front suspension**
Spring strut suspension with integrated shock absorbers and control arms linked to

pg. 214 Specifications

## Suspension

the support frame. Power-assisted rack and pinion steering. Safety type steering column.

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## Three-way catalytic converter

**Points to keep in mind**

- Keep your engine properly tuned. Certain engine malfunctions, particularly involving the electrical, fuel or distributor ignition systems, may cause unusually high three-way catalytic converter temperatures. Do not continue to operate your vehicle if you detect engine misfire, noticeable loss of power or other unusual operating conditions, such as engine overheating or backfiring. A properly tuned engine will help avoid malfunctions that could damage the three-way catalytic converter.
- Do not park your vehicle over combustible materials, such as grass or leaves, which can come into contact with the hot exhaust system and cause such materials to ignite under certain wind and weather conditions.
- Excessive starter cranking (in excess of one minute), or an intermittently firing or flooded engine can cause three-way catalytic converter or exhaust system overheating.
- Remember that tampering or unauthorized modifications to the engine, the Electronic Control Module, or the vehicle may be illegal and can cause three-way catalytic converter or exhaust system overheating. This includes:

- Altering fuel injection setting or components.
- Altering emission system components or location or removing components.
- Repeated use of leaded fuel.

**NOTE:** Unleaded fuel is required for vehicles with three-way catalytic converters.

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## Electrical system

| 12-volt system with voltage controlled generator. Single wire system in which the chassis and engine block are used as conductors, grounded on the chassis. | | |
|---|---|---|
| **Battery** | **3.2 6-cyl.** | **V8** |
| Voltage | 12 V | 12 V |

| | | |
|---|---|---|
| Cold start capacity(CCA) | 520 A | 600 A |
| Reserve capacity (RC) | 100 min | 120 min |
| Capacity (Ah) | 60 | 70 |
| If you must replace your battery, be sure to replace it with a battery of the same cold start capacity and reserve capacity as the original (See the decal on the battery). | | |

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## Engine specifications

| | **B6324S** | **B8444S** |
|---|---|---|
| Output(kW/rps) | 175/103 | 232/100 |
| (hp/rpm) | 235/6200 | 311/6000 |
| Torque(Nm/rps) | 320/53 | 440/65 |
| (ft. lbs./rpm) | 235/3200 | 325/3900 |
| No. of cylinders | 6 | 8 |
| Bore (in./mm) | 3.3/84 | 3.7/94 |
| Stroke (in./mm) | 3.77/96 | 3.13/79.5 |
| Cylinder displacement, liters | 3.19 (194.7 cu in) | 4.41 (268.6 cu. in.) |
| Compression ratio | 10.8:1 | 10.4:1 |

**Charge air cooler (Intercooler)**
Turbocharged engines employ a turbocompressor to force air into the engine inlet manifold and a charge air cooler to cool the compressed inlet air. The resulting increase in air flow raises pressure in the intake manifold and increases engine power over that developed by the normally-aspirated engine. The charge air cooler (which resembles a radiator) is located between the turbo-compressor and inlet manifold.

**Fuel system**
The engine is equipped with a multiport fuel injection system.

pg. 218 Specifications

## Volvo programs

**Volvo On Call Roadside Assistance**

Your new Volvo comes with a four year ON CALL roadside assistance. Additional information, features, and benefits are described in a separate information package in your glove compartment.
If you have misplaced your package, dial:
In the U.S.A.
1-800-638-6586 (1-800-63-VOLVO)
In Canada:
1-800-263-0475

**Technician certification**

In addition to Volvo factory training, Volvo supports certification by the National Institute for Automotive Service Excellence (A.S.E.). Certified technicians have demonstrated a high degree of competence in specific areas. Besides passing exams, each technician must also have worked in the field for two or more years before a certificate is issued. These professional technicians are best able to analyze vehicle problems and perform the necessary maintenance procedures to keep your Volvo at peak operating condition.

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# 2007 VOLVO XC90

## Audio

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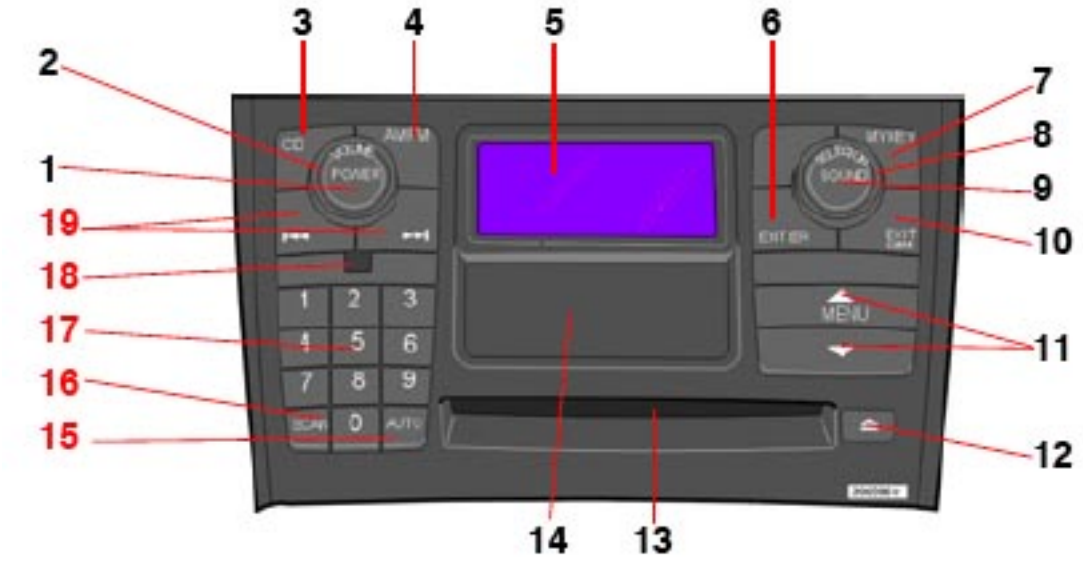
### pg. 220 Audio

## Audio system overview




1. On/Off
2. Volume
3. CD player
4. AM/FM - for switching between FM1, FM2 and AM
5. Display
6. ENTER - select in the menu or activate a selection
7. MY KEY - programmable key for your favorite function from the menu
8. SELECTOR - select sound source
9. SOUND - make sound settings
10. EXIT/CLEAR - step back in the menu or cancel a selection
11. Menu selections/navigation
12. CD eject
13. CD slot, CD changer (option)
14. Storage compartment
15. AUTO - search for and store the strongest radio stations in the area in which you are driving
16. SCAN
17. Station preset buttons/CD changer discs (1-6)
18. Infrared (IR) port - for the optional audio/ navigation system remote control
19. Seek/change tracks or stations

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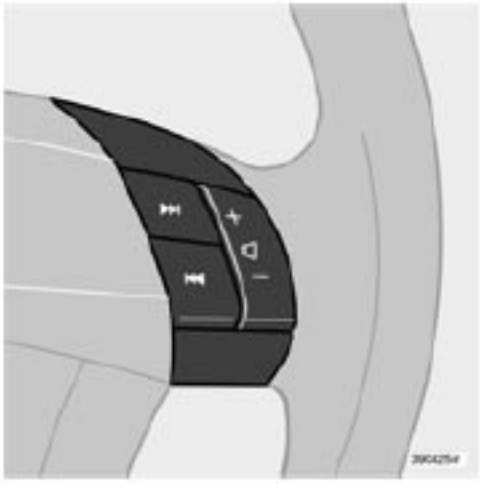
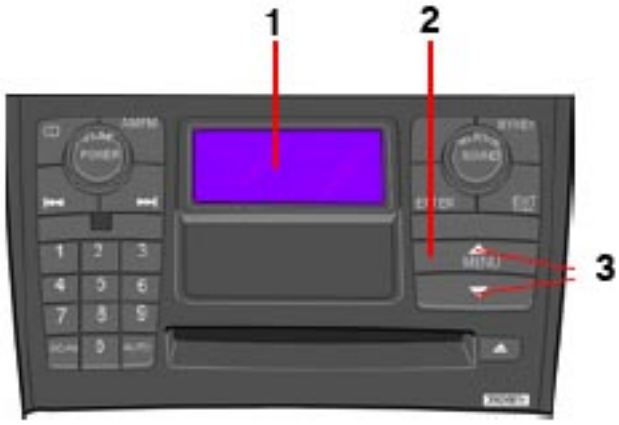
## Audio system controls



**Steering wheel keypad (option)**
The four buttons on the steering wheel keypad can be used to control the audio system. The steering wheel keypad can be used to adjust volume, shift between preset stations and change CD tracks.

- Press the ⏮ or ⏭ buttons briefly to search for a radio station, or to go to the next/previous track on a CD
- Press and hold down these buttons to search within a track.




**Display**
The display (1) shows the currently selected function, menu selections, etc.
Clean the display with a dry, soft, lint-free cloth. Do not use cleaning agents.

**Accessing and using menus**
In menu mode, you can change settings and program new functions in the audio system. The various menu alternatives are shown in the display, and the current level in the menu structure is shown at the upper right corner of the display.
Press the menu button (2) to enter menu mode.

Use the menus as follows:

- Use the menu arrow keys (3) to navigate up or down in the menus. Dots in the display indicate that there are more menu selections from which to choose.
- Press ENTER to confirm or cancel a menu selection.
- One long press on EXIT/CLEAR exits menu mode.
- A short press on the EXIT/CLEAR enables you to cancel, undo, or answer no to a menu selection, or to go back in the menu structure.

**Shortcut**

The menu alternatives are numbered and can be accessed directly by pressing the respective keys on the numbered keypad on the left side of the audio panel.

**MY KEY - programming a shortcut**

Use the MY KEY button to program a favorite function from the menu, such as RANDOM, etc.

- Use the MENU buttons to scroll among the functions.
- Select the desired function from the menu by pressing the MY KEY button for more than two seconds.
- When MY KEY STORED is shown in the display, the function has been stored.

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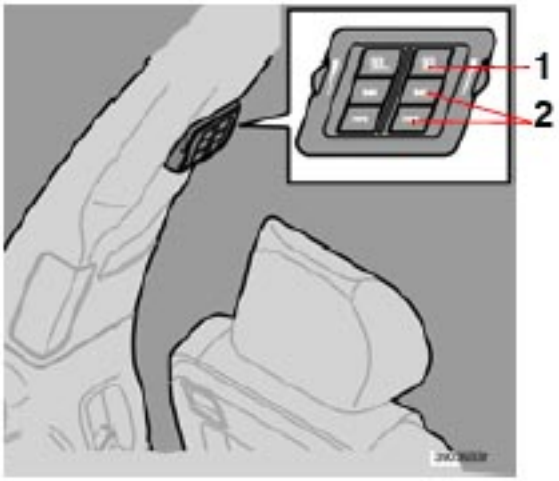
## Audio system controls

- Activate the function by briefly pressing the MY KEY button.

Repeat steps 1-4 to store new functions on the MY KEY buttons.

**NOTE:** The MY KEY buttons can only be programmed for one shortcut function at a time.




**Rear headphone connectors and controls (option)**

The door panels behind the second row of seats can be equipped with headphone connectors for

passengers in the second and optional third row of seats. Several people can listen to different sound sources, such as CDs or the radio at the same time without disturbing each other.
Two sets of headphones can be plugged into each connector.

- With the audio system switched on, use the SEL button (1) to select a sound source.
- Press the arrow keys (2) briefly to change CD tracks or switch between preset stations.
- Hold down the arrow keys to fast forward/reverse, or search for the previous/next strong radio station.
- Hold down the SEL button to turn off the sound.

**NOTE:** For the best sound reproduction, we recommend headphones with impedance between 16-32 ohm. The sensitivity of these should be equal to or greater than 102 dB. The headphone connections are intended for 3.5 mm contacts and are located under the lower edge of the socket All headphones are automatically turned off when the ignition is switched off. They must be manually restarted when the ignition is switched on again.

**Headphones - limitations**

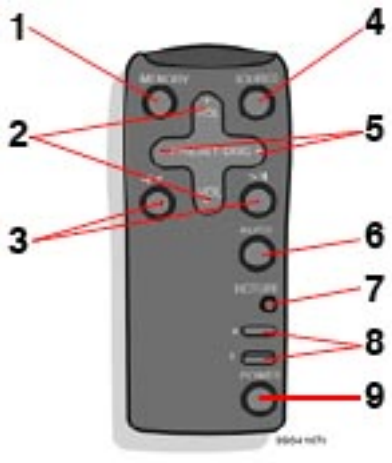
- The headphones will only work when the ignition key is in position I or higher.
- If a set of headphones is connected to the same source that is being sent through the speakers, the headphone controls cannot be used to change track or station. This is to prevent the driver from being distracted by an unexpected change in music.
- If the driver selects the same sound source as someone listening to this

pg. 223 Audio

## Audio system controls

source through headphones, the driver takes control of the sound source.

- Only one disc in the optional CD changer, and one track on the CD can be played at a time.
- Headphone users can choose from among the preset radio stations (AM, FM1, FM2) previously set by the driver.
- If FM is played in the speakers, AM is not available and vice versa.




**Remote control**

1. Memory - stores radio stations that have been found by a search

**To store a station:**

- Press the memory button (1). The preset station number will flash 4 times in the display
- While the preset number is flashing, use the + or - buttons (5) to select a position at which to store the station
- Press button 1 again to store the station

2. Volume
3. Forward/back - fast forward or back
4. Source - step between sound sources

5. Preset/disc - selects among CD's (in the optional CD changer) or preset radio stations
6. Auto store - searches for and stores the strongest radio stations
7. Not in use
8. Not in use
9. Power - off/on

Point the remote control toward the IR port on the radio panel (see the illustration on page 220).

**NOTE**: If the remote control does not function properly, check the batteries (AAA or R03).

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## Radio functions

**On/Off button**
To activate the system:
- Turn the ignition key to position I.
- Press the POWER button (2) to switch the audio system on or off.

**NOTE:** If you switch off the ignition while the audio system is on, the system will be on when the ignition is switched on again.

**Volume control**
Turn the knob (3) clockwise or counterclockwise to raise or lower the volume. The volume control is electronic and has no end position. Volume can also be raised (+) or lowered (-) using the optional steering wheel keypad.

**Pause mode**
If the volume is turned off, the CD player will go into pause mode. Re-activate the player by turning up the volume.

**Selecting a sound source**
- Press AM/FM (4) repeatedly to toggle between FM1, FM2, and AM
- Press the CD button (1) to change to the CD player or optional CD changer
- Turn the SELECTOR control (5) to choose FM1, FM2, AM, CD, CD changer (option), AUX (option), or the optional Sirius satellite radio

The selected sound source will be shown in the display.

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## Radio functions

**Sound settings**
- Press the SOUND button (1) repeatedly until you come to the setting that you wish to change. Choose BASS, TREBLE, FADER, BALANCE, SUBWOOFER (option), CENTER (option) or SURROUND (option).
- Use the SELECTOR control (2) to adjust the level of the setting you have selected. The display shows a scale from min. to max. position. The center indicates the normal position.

**NOTE:**
- Sound level for the center speaker can only be set if Dolby Pro Logic II (DPL II) or three-channel stereo (3-CH) is selected in the menu.

Sound level for the subwoofer can only be set if SUBWOOFER is selected in the menu (activated).

| Setting | Shown in the display |
|---|---|
| Bass | BASS |
| Treble | TREBLE |
| Balance between the right and left speakers | BALANCE |
| Balance between the front and rear speakers | FADER |
| Bass speaker level | SUBWOOFER (option) |
| Center speaker level | CENTER (Premium Sound system only) |
| Surround sound level | SURROUND (Premium Sound system only) |

**SURROUND MODE**

Surround sound settings are used to balance sound levels throughout the vehicle. Surround settings for the various sound sources are made separately.
There are three settings for surround sound.

- PRO LOGIC II
- 3-CHANNEL
- OFF (2-channel stereo)

The symbol in the display indicates that Dolby Surround Pro Logic II is activated.

- Dolby Surround Pro Logic II functions in CD mode only.
- 2-channel stereo is recommended for AM/FM radio broadcasts.
- Dolby Surround Pro Logic II is only available on the highest level audio system - Premium Sound.

Use the following instructions to select PRO LOGIC II, 3-CHANNEL, or to turn these functions off. See also the menu structure on page 236.

- Select AUDIO SETTINGS in the menu and press ENTER.
- Select CD SURROUND and press ENTER.
- Select PRO LOGIC II, 3-CHANNEL, or OFF and press ENTER.

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## Radio functions

- The symbol PL II is displayed when Pro Logic II is selected.
- 3-CH is displayed when 3-channel stereo is selected.
- OFF indicates normal stereo mode.

Dolby noise reduction is manufactured under license from Dolby Laboratories Licensing Corporation.

"Dolby Surround Pro Logic II", and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation. Dolby Surround Pro Logic II is manufactured under licence from Dolby Laboratories Licensing Corporation.

**Bass speaker - SUBWOOFER (option)**
The subwoofer helps the system provide fuller sound and deeper bass.
- Select AUDIO SETTINGS in the menu and press ENTER.
Select SUBWOOFER and press ENTER.
See page 225 for information on setting the subwoofer level.

**Equalizer FR**
**EQ - FRONT (certain audio systems)**
This function is used to fine-tune the sound from the front speakers.

- Select AUDIO SETTINGS in the menu and press ENTER.
- Select Equalizer FR and press ENTER.
- Use the menu selection buttons to set the level or use the SELECTOR control.
- Press ENTER to select the next frequency. You can select five frequencies.
- Press ENTER until you come to the menu mode to save the changes you have made.

**Equalizer RR**
**EQ - REAR (certain audio systems)**
This function is used to fine-tune the sound from the rear speakers.
- Select AUDIO SETTINGS in the menu and press ENTER.
- Select EQ- REAR and press ENTER.

Use the menu selection buttons to set the level or use the SELECTOR control.
- Press ENTER to select the next frequency. You can select five frequencies

Press ENTER until you come to the menu mode to save the changes you have made.

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## Radio functions

**Station search**
- Choose radio mode AM/FM1/FM2 using the SELECTOR control (3) or the AM/FM button (1).
- Press briefly on |◄◄ or ►►| to search for the next strong station. The radio will search for the next audible station and then stop.
- Press one of the buttons again to start a new search.

**Manually search for a known frequency**
- Press and hold the |◄◄ or ►►| button (or the corresponding buttons on the steering wheel keypad). MAN will be shown in the display. The radio will slowly scroll in the desired direction and then increase

speed after a few seconds.
- Release the button when the desired frequency is displayed.
- If you need to adjust the frequency, press briefly on or .

The manual search function is available for five seconds after you last pressed the button.

**Storing stations**
To store a selected station under one of the station setting buttons 0-9 (2):
- Set the desired station.
- Press the button under which the station is to be stored and keep it depressed. The sound will be interrupted for several seconds and STATION STORED is shown in the display. The station is now stored.

You can store up to 10 stations each for AM, FM1 and FM2, i.e. a total of 30 stations.

**Frequency ranges**

| Radio | Frequency band |
|---|---|
| FM | 87.7 - 107.9 MHz |
| AM | 530 - 1710 kHz |

pg. 228 Audio

## Radio functions

**Automatically storing stations - AUTOSTORE**
This function automatically searches for, and stores up to 10 strong AM or FM stations in a separate memory. If more than 10 stations are found, the 10 strongest ones will be stored. The function is especially useful in areas in which you are not acquainted with radio stations or their frequencies.

**Starting autostore**

- Choose a frequency band with the AM/ FM button.
- Press and hold down the AUTO button (2) until AUTOSTORING is shown in the display.

When AUTOSTORING is no longer displayed, the autostore process is complete. If there are no stations with sufficient signal strength, NO AST FOUND is displayed.

**Stopping autostore**
- Press EXIT.

**Selecting an autostored station**
- Press AUTO (2) briefly. AUTO will be displayed.
- Press one of the preset buttons.

The radio will remain in Autostore mode until AUTO, EXIT, or AM/FM is pressed.

**SCAN**
This function automatically searches the currently selected waveband (AM, FM1, or FM2) for strong stations. When the radio finds a station, it will pause for approximately 8 seconds, after which it will continue scanning.

**Activating/deactivating Scan**
- Choose a waveband by pressing the AM/ FM button.
- Press SCAN (1). SCAN will be shown in the display.
- Press EXIT to stop scanning.

**Storing a station found by SCAN**
Stations can be stored on the preset buttons while the SCAN function is activated.
- Press a preset button and hold it down until Station stored is displayed.
- This deactivates SCAN and the stored station can be selected by pressing the preset button.

**Radio text**
Certain stations broadcast program information, which can be shown in the display.
- Press the MENU button.
- Select RADIOTEXT in the menu and press ENTER.

Select RADIOTEXT again to deactivate.

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## Sirius satellite radio (option or retailer-installed accessory)

**Listening to satellite radio**

The Sirius satellite system consists of a number of high elevation satellites in geosynchronous orbit.

**NOTE:** The digital signals from the Sirius satellites are line-of-sight, which means that physical obstructions such as bridges, tunnels, etc, may temporarily interfere with signal reception.

**Selecting Sirius radio mode**
- Press Power to switch on the audio system (see page 220 for information on the standard radio functions).
- Turn the SELECTOR dial until Sirius 1 or 2 is displayed.

**Activating Sirius radio**
- Tune to a satellite channel that has no audio, which means that the channel is unsubscribed and the text "Call 888-539- SIRIUS TO SUBSCRIBE" is displayed (see also "Selecting a channel" below).
- Call Sirius at 1-888-539-SIRIUS (7474). - When asked for the Sirius ID number press AUTO to display this number. It is also possible to retrieve the Sirius ID from the MENU.
- "UPDATING SUBSCRIPTION" will be displayed while the subscription is being updated, after which the display will return to the normal view.

**SIRIUS ID**
The SIRIUS ID is required when contacting the Sirius Call Center. It is used to activate your account and when making any account transactions. The SIRIUS ID is sometimes referred to as the Electronic Serial Number (ESN).
This function displays the 12-digit SIRIUS ID.

**Selecting a channel category**
- Select Sirius radio mode as described above.
- Press ENTER.
- Use the up/down arrow keys to scroll through the list of categories.
- Press ENTER to select a category.
- Use the and buttons to select a channel in the currently chosen category.

**NOTE:**

- The category "All" is default, which enables you to scroll through the entire list of available satellite channels.
- The channel categories are automatically updated several times a year. This takes approximately two minutes and will interrupt normal broadcasting. A message will be displayed while updating is in progress. Information on channel or feature updates is available at www.sirius.com.

**Selecting a channel**
There are two ways of tuning in a channel:

- By pressing and holding the |◄◄ and ►►| buttons to start the scroll function. The scrolling function begins slowly and increases speed after approximately 5 seconds. Release the button to listen to the currently displayed channel.
- Through direct channel entry

**Direct channel entry**
The Sirius satellite channels are numbered consecutively throughout all of the categories. To access a channel directly:
- Press MENU and scroll to "Direct channel entry."
- Use the numerical keypad to enter the channel's number. Press EXIT if necessary to erase a digit.
- Press ENTER. The radio will tune to this channel, even if it belongs to a category other than the currently selected one.

**NOTE:**
- The numbers of skipped or locked channels will not be displayed.
- If a channel is locked, the access code must be entered before the channel can

pg. 230 Audio

## Sirius satellite radio (option or retailer-installed accessory)

be selected. See "Unlocking a channel" on page 231.

**Scanning**
SCAN automatically searches through the list of satellite channels. **Storing a channel**
A total of 20 satellite channels can be stored; 10 channels each for Sirius 1 and 2.
- A **long** press on one of the number keys stores the currently tuned channel on that key.
- A **short** press on a number key while the radio is in Sirius 1or 2 mode will tune to the preset satellite channel stored on that button, regardless of the currently selected channel category.

**Song Seek and Song Memory**
The Song Seek and Song Memory functions provide both audio and visual notification when Sirius is broadcasting your favorite songs. Song Seek enables you to store the name of the song for future advance notification when that song is being played. The Song Memory feature makes it possible to view all of the current songs that are stored in memory.

**Song memory**
Up to ten songs can be saved in the system's memory.
- Press MENU.
- Scroll to "Add song to song mem." and follow the instructions shown in the display.
If a new song is selected when the memory is full, you will be prompted to press ENTER to delete the

last song on the list.
The remaining songs in the list will move down one position, and the newly added song will be placed at the top of the list.

**Song seek**
When a satellite radio channel plays one of the songs stored in the song memory, the listener will be alerted by a text message and an audible signal.
Press ENTER to listen to the song or EXIT to cancel.
To activate/deactivate the song seek function:
- Press MENU
- Scroll to "Song seek"
- Press ENTER to activate or deactivate the function.

**NOTE:** When the song has ended, the radio will remain tuned to the channel on which the song was played.

**Radio text**
The text that is displayed about the song currently playing can be changed. Use the AUTO button to switch between Artist, Title, Composer, or to switch radio text off, or use the menu to display and select among these catagories.

**Advanced settings**
This menu function enables you to make settings on certain Sirius satellite radio functions. To access this menu:
- Press MENU.
- Select Adv. settings.

**WARNING!**

Settings should be made when the vehicle is at a standstill.

The following settings can be made in the Sirius menu.
- Songs can be added to the song list
- Channel skip settings can be made
- Channel lock settings can be made
- The channel access code can be displayed or changed

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## Sirius satellite radio (option or retailer-installed accessory)

- Your Sirius ID can be displayed

**Skip options**
This function is used to remove a channel from the list of available channels.

***Skip current channel***
- Select CHANNEL SKIP LIST and press ENTER.
- Select a category in the list and press ENTER.
- Skip channels in the list presented by pressing ENTER.

***Unskip all channels***
This permanently removes all channels from the skip list and makes them available for selection.

***Temp. unskip all ch.***
This function will temporarily unskip all channels and make them available for selection. The channels remain on the skip list and will again be skipped the next time the ignition is switched on.

**Channel lock**
Access to specific channels can be restricted (locked). A locked channel will not provide audio, song titles, or artist information.

**NOTE:** All channels are initially unlocked at delivery.

**Locking a channel:**
- Select "Adv. settings" in the menu and select LOCK OPTIONS and press ENTER.
- Select CHANNEL LOCK LIST and press ENTER
- Enter the channel access code[1] and press ENTER.
- Select a category in the list and press ENTER.
- Lock channels in the list presented by pressing ENTER.

The channel is now locked and a checked box will be displayed to indicate this. It will be necessary to enter the channel access code[1] in order to listen to a locked channel.

**Unlocking a channel:**
A channel's access code[1] is required to unlock a channel.

***Unlock all channels***
This permanently removes all channels from the locked list and makes them available for selection.

***Temp. unlock all ch.***
This function will temporarily unlock all channels and make them available for selection. The channels remain on the locked list and will again be locked the next time the ignition is switched on.

**CHANGE CODE**
This function makes it possible to change the channel access code. The default code is 0000.
To change the code:
- Select CHANGE CODE and press ENTER.
- Enter the current code and press ENTER.
- Enter the new code and press ENTER.
- Confirm the new code and press ENTER.

If an incorrect code is entered, the text "Incorrect code!" is displayed.

**If you have forgotten the access code:**
Select "SIRIUS ID" in the Sirius settings menu and press ENTER.
Press and hold the ENTER button for 2 seconds.
The current code will be displayed.
Your Volvo retailer can also provide you with assistance.

1. The default code is 0000. If you have changed the code and forgotten it, see the section "If you have forgotten the access code" on the following page.

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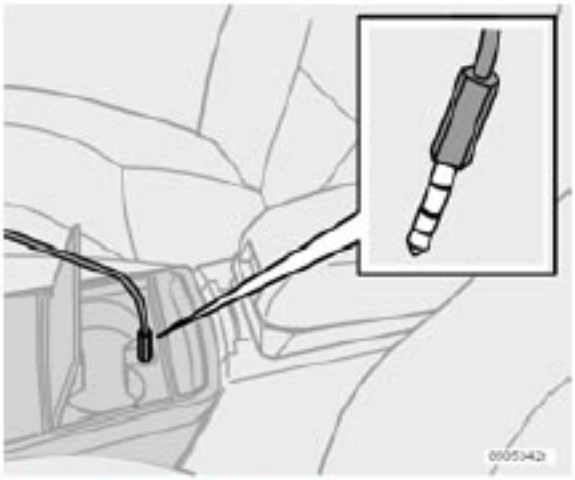
## Auxiliary equipment


*Auxiliary connector port*

**AUX (option)**
The AUX (auxiliary) port can be used to connect, for example, an mp3 player.
If the player is being charged through a 12- volt socket while it is connect to the AUX port, sound

quality may be impaired.
The volume of the external sound source AUX may be different from the volume of the internal sound sources such as the CD player or the radio.

**Auxiliary sound level**
If the external sound source's volume is too high, the quality of the sound may be impaired.
This can be prevented by adjusting the external sound source's input volume.
- Select AUX VOLUME in the menu and press ENTER.
- Adjust the volume with SELECTOR (1) or with the up/down arrows (2) and press ENTER.

**NOTE:**
- This cannot be done with the optional steering wheel keypad.
- The cover over the cup holders should be open when an auxiliary device is connected.

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## CD functions

**Playing a CD**

**CD player**
If a CD is in the slot and the audio system is in CD mode when it is switched on, the CD will be played automatically. Otherwise, to play a CD:
- Insert a CD into the slot (2).
- Select the CD mode using the SELECTOR control (4) or the CD button (1).

**CD changer (option)**
The CD changer can hold up to six discs.
If a CD position in the changer containing a disc is selected, and the audio system is in CD mode when it is switched on, the CD will play automatically. Otherwise, to play a CD:
- Select an empty position using the station setting buttons 1-6. INSERT DISC will be displayed. Be sure this text is displayed before inserting a disc. The numbers of positions already containing discs are shown in the display.
- Insert a CD into the slot (2).
- Select the CD mode using the SELECTOR control (4) or the CD button (1).

**Ejecting CDs**
**CD player**
- Press the EJECT button (3) to eject the CD.

**NOTE:** For reasons of traffic safety, the ejected CD must be removed within 12 seconds or it will be automatically drawn back into the slot and the CD player will enter pause mode. Press the CD button to restart the disc.

**CD changer**
**Ejecting one disc**
**A short press** on the EJECT button (3) will eject the CD that is currently playing.

**NOTE:** For reasons of traffic safety, you have 12 seconds in which to remove the ejected disc. After that, the disc automatically reinserts into the player.

**Ejecting all discs**
**A long press** on the EJECT button (3) starts the EJECT ALL function.
The text EJECTING ALL will be displayed and the entire magazine will be emptied disc by disc.

**NOTE:**
- The EJECT ALL function can only be used while the vehicle is at a standstill and will be cancelled if the vehicle begins to move.
- For reasons of traffic safety, you have 12 seconds in which to remove the ejected disc. After that, the disc automatically reinserts into the player.

**Pause**

To pause CD playback, turn the volume all the way down. "CD paused" will be displayed. This will not occur if someone in the rear seat is listening to the CD through the optional headphones. Play will resume when the volume is turned up again.

**Audio files**
In addition to playing normal music CDs, the CD player/changer can also play discs containing files in mp3 or wma format.

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## CD functions

**NOTE:** Certain discs that are copy protected cannot be read by the player. When a disc with audio files is inserted in the player, the player scans the disc's folders before it begins playing the files. The length of time that this takes depends on the quality of the disc.

**Navigating the disc and playing tracks**
If a disc with audio files is in the CD player, press ENTER to display a list of folders on the disc.
Use the up and down arrows to move among the folders on the disc. Audio files have the ♩ symbol and folders containing these files have the  symbol.
Press ENTER to play a selected folder or a file.
When the music file has been played, the player will continue to play the rest of the files in the current folder. When all of the files in the folder have been played, the player will automatically go to the next folder and play the files in it.

**NOTE:** Press or if the entire name of the current track does not fit in the display.

**Changing tracks**
**CD player/CD changer**
- Briefly press or to go to the next/ previous track or file. The optional steering wheel keypad can be used in the same way.
- Press and hold down or to search within a track/file. The search continues as long as the buttons are depressed. The optional steering wheel keypad can be used in the same way.

**SCAN**
This function plays the first ten seconds of each track or file[1].
- Press SCAN to begin scanning the tracks or files on the currently selected CD.
- Press EXIT/CLEAR or SCAN to interrupt the scan function and listen to an entire track or file.

**Random play**

**CD player**
This function plays the tracks or files on a CD in random order (shuffle).

**If a normal music CD is being played:**
- Select RANDOM in the menu and press ENTER.

**If a CD with mp3 or wma files is being played:**
- Select DISC or FOLDER in the menu and press ENTER.

**CD changer**
This function offers two alternatives for playing the tracks on the disc(s) in the CD changer in random order (shuffle).
- SINGLE DISC (random order on the currently selected disc)
- ALL DISCS (random order on all of the CDs in the changer)

**If a normal music CD is being played:**
- Select RANDOM in the menu and press ENTER.
- Select SINGLE DISC or ALL DISCS and press ENTER.

**NOTE:** Press to play the next randomly selected track. This can only be done on the currently selected disc.

**If a CD with mp3 or wma files is being played:**
- Select SINGLE DISC or FOLDER in the menu and press ENTER.

This function is deactivated when a new disc is selected.

1. CD changer: SCAN only functions on the currently selected disc.

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## CD functions

**Disctext**
Certain CDs contain information about the disc, such as the titles of the tracks, etc. This information can be shown in the display by activating the DISCTEXT function.
- Press the MENU button.
- Select DISCTEXT in the menu and press ENTER.
- Any information that may be stored on the disc will be displayed.

To deactivate this function, select DISCTEXT and press ENTER.

**Compact disc care**

- Do not put tape or labels on the disc itself. They could become stuck in the player.
- Use CD standard EN 60908 discs only. Discs not meeting this standard may cause problems with system (poor sound). CDR discs can cause listening problems due to the quality of the disc or recording equipment used.
- DualDisc: The audio side of a DualDisc (combined CD/DVD) does not meet CD specifications and may not play in your audio system.
- Keep the discs clean. Wipe them with a soft, clean, lint-free cloth, working from the center outwards. If necessary, dampen the cloth with a neutral soap solution. Dry thoroughly before using.
- Never use cleaning spray or antistatic liquid. Use only cleaners specifically made for CD's.
- Use discs of the correct size only (3.5" discs should never be used).
- Volvo does not recommend the use of plastic outer rings on the disc.
- Condensation may occur on discs/ optical components of the changer in cold winter weather. The disc can be dried with a clean, lint-free cloth. Optical components in the CD changer may, however, take up to one hour to dry off.
- Never attempt to play a disc which is damaged in any way.

When not in use, the discs should be stored in their covers. Avoid storing discs in excessive heat, direct sunlight or dusty locations.

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## Menu structure

**FM Menu**
**1. Radio Text**
**2. Audio Settings[1]**

1. Surround
2. Subwoofer (option)
3. Equalizer Fr
4. Equalizer Rr
5. Reset All

**AM Menu**
See Audio Settings i the FM Menu.

**CD Menu**
**1. Random**
**2. Disc Text**
**3. Audio Settings**

See Audio Settings in the FM Menu.

**AUX Menu (option)**
1. AUX input vol
2. Audio Settings[1]
See Audio Settings in the FM Menu

1. Certain audio systems

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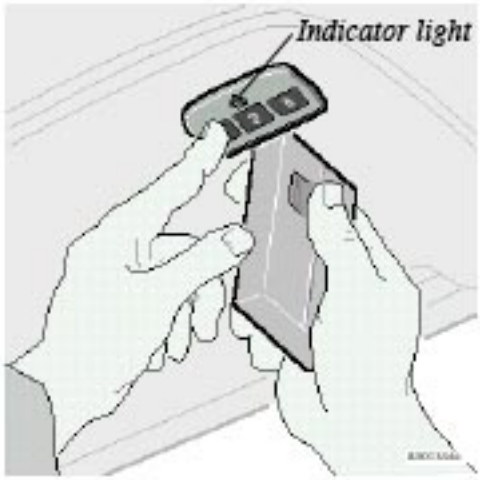
## HomeLink® Universal Transceiver



Hand-held transmitter

**HomeLink® Universal Transceiver**
HomeLink® is an advanced system that can be programmed to learn the codes of three different remote controlled-devices (e.g., garage door openers, remote lighting, entry door lock). HomeLink®'s sun visor-mounted transceiver, powered by your vehicle's electrical system, may then be used in place of your hand-held remote controls.

**NOTE:** For your security, the HomeLink® Universal Transceiver is designed to not function if you lock your vehicle from the outside.

**Programming the transceiver**
- The ignition switch must be turned to the "accessory" position (II) before programming the HomeLink® Universal Transceiver.
- Begin by erasing all 3 factory default channels. Hold down the two outside buttons (buttons 1 and 3 in the illustration) on the HomeLink® Universal Transceiver for about 20 seconds, until HomeLink®'s indicator light begins to flash. Then release the buttons.

- Hold your hand-held transmitter (garage door opener, for example) 2 to 5 in. (5 to 12 cm) away from the HomeLink® surface, keeping the indicator light in view. For placement questions, contact HomeLink® toll-free 1-800-355-3515 (Internet: www.HomeLink.com).
- Using two hands, push and hold both your hand-held transmitter's button and the transceiver button you wish to program. The indicator light will flash first slowly, then rapidly. Rapid flashing tells you the HomeLink® button has been successfully programmed. Release both buttons.
- If you are programming a rolling code-equipped device (e.g., garage door opener or entry door lock), refer to "Programming rolling codes" on the next page to complete the programming process.

Repeat steps 3 and 4 to program the other two transceiver buttons.
If, after several attempts, you are unable to successfully train the HomeLink® Universal Transceiver to learn your hand-held transmitter's signal, contact HomeLink® toll-free 1-800-355-3515 (Internet: www.HomeLink.com).

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## HomeLink® Universal Transceiver

**WARNING!**

- If you use HomeLink® to open a garage door or gate, be sure no one is near the gate or door while it is in motion.
- Do not use the HomeLink® Universal Transceiver with any garage door opener that lacks safety "stop" and "reverse" features as required by federal safety standards. (This includes any garage door opener model manufactured before April 1, 1982) A garage door opener that cannot "detect" an object, signalling the door to "stop" and "reverse" does not meet current federal safety standards. Using a garage door opener without these features increases the risk of serious injury or death. For more information on this matter, call toll-free 1-800-355-3515
(Internet: www.HomeLink.com).

**NOTE: Canadian residents:**
During programming, your hand-held transmitter may automatically stop transmitting. To successfully train HomeLink®, continue to hold the HomeLink® button. At the same time, repeatedly press and hold your handheld transmitter's button at two-second intervals until HomeLink® has learned your transmitter's code. The HomeLink® indicator light will flash first slowly, and then rapidly to indicate that the button has been successfully programmed.

**Determining if your garage door uses a rolling code**
Determine, in one of the following ways, if your garage door uses a rolling code system and is

manufactured after 1996:

- Refer to the garage door opener owner's manual for verification.
- If your hand-held transmitter appears to program the HomeLink® Universal Transceiver but the programmed button does not activate the garage door, your garage door opener may have a rolling code.
- Press the programmed HomeLink® button. If the garage door opener has the rolling code feature, the HomeLink® indicator light flashes rapidly and then glows steadily after approximately 2 seconds.

**To train a rolling code garage door opener,** follow these instructions after programming the desired transceiver button according to "Programming the transceiver." The help of a second person may make training easier.
- Locate the training button on the garage door opener motor head unit. The location and color of the training button may vary. If you encounter difficulty, refer to the garage door opener owner's manual or call toll-free 1-800-355-3515 (Internet: www.HomeLink.com).
- Press the "training" button on the garage door opener motor head unit until the "training" light comes on.
- Press and release the programmed HomeLink® button. Press and release the programmed HomeLink® button a second time to complete the training process.
- Some garage door openers may require you to do this procedure a third time to complete the training.
- The programmed button on your HomeLink® Universal Transceiver should now operate your garage door opener. The original hand-held transmitter can also be used, as desired, to operate the garage door.

The remaining two HomeLink® buttons can be programmed in the same way. In the event of any problems in programming the HomeLink® Universal Transceiver, call toll-free 1-800-355-3515 (Internet: www.HomeLink.com).

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## HomeLink® Universal Transceiver

### Operating the HomeLink® Universal Transceiver

Once programmed, the HomeLink® Universal Transceiver can be used in place of your hand-held transmitters.
To operate, the key must be turned to the "accessory" position (II) or the engine must be running. Press the programmed HomeLink® button to activate the garage door, driveway gate, security lighting, home security system, etc.
Your original hand-held transmitters may, of course, be used at any time.

### Erasing programmed buttons

Individual buttons cannot be erased. To erase all three programmed buttons:
- Turn the ignition key to the "accessory" position (II).

- Hold down the two outside buttons on the HomeLink® Universal Transceiver for about 20 seconds, until HomeLink®'s indicator light begins to flash.
- Release both buttons.

The HomeLink® buttons can be reprogrammed using the procedures described on the previous page.

**Reprogramming a single HomeLink® button**
- Press and hold the desired HomeLink® button. Do not release the button until step 3 has been completed.
- When the indicator light begins to flash slowly (after approximately 20 seconds), position your hand-held transmitter 2 to 5 in. (5 to 12 cm) away from the HomeLink® surface.
- Press and hold the hand-held transmitter button. The HomeLink® indicator light will flash first slowly, then rapidly. When the indicator light flashes rapidly, release both buttons.

The previously programmed device has now been erased and the new device can be activated by pressing the HomeLink® button that has just been programmed. This procedure will not affect any other programmed HomeLink® buttons.

**NOTE:**
- Retain the original transmitter(s) for future programming procedures (e.g., if you purchase a new vehicle).
- For your own security, erase all programmed buttons on the HomeLink® Universal Transceiver when you sell your vehicle.
- Metallic sun protection films should not be used on any windows in a vehicle equipped with HomeLink® Universal Transceiver. This could interfere with the transceiver's function.

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